

PEG

FALL 2018

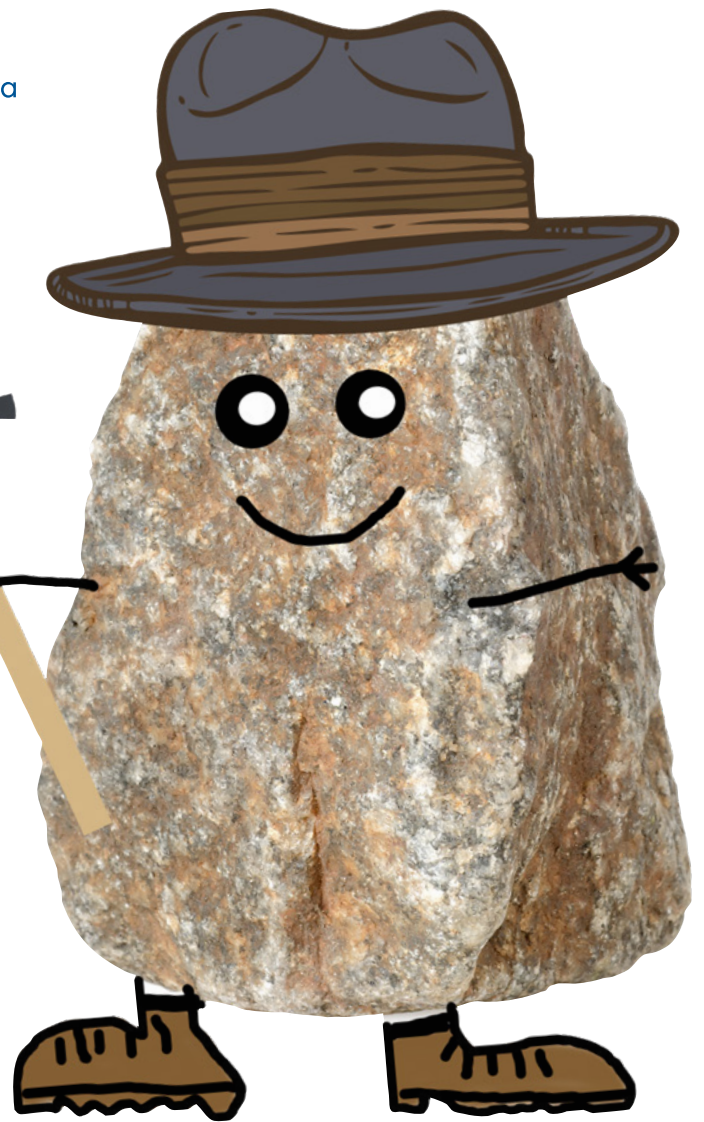


Salary Survey SUMMARY

ARE YOU INTO ROCK?

Bring your families (and
their rocks and fossils) to
the **APEGA Rock &
Fossil Clinic.**

Professional geoscientists and their team will inspect your collections and share all sorts of fun facts—for free!



Saturday, October 13
10 a.m. to 4 p.m.
TELUS World of Science — Edmonton

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PEG

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The PEG's content relates primarily to APEGA, our statutory obligations, our services to Members and Permit Holders, and the professional development of Members. The magazine also celebrates Member and Permit Holder accomplishments in Professional Engineering, Professional Geoscience, and other areas.

The PEG is not a technical, peer-reviewed publication. Although we publish items about accomplishments in research, we **do not** publish actual academic or scientific papers and presentations, even in summary form.

The PEG does not accept advertising.

Opinions published in *The PEG* do not necessarily reflect the opinions or policy of APEGA or its Council.

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WHO WILL BE CELEBRATED NEXT?

Shine a light on excellence in engineering or geoscience by nominating a colleague or project for an APEGA Summit Award.



SUBMIT YOUR NOMINATION TODAY.

apegasummit.ca/nominate

Nominations close **September 21, 2018.**



The Association of Professional
Engineers and Geoscientists of Alberta

A Few Tips for Succeeding in a Tricky Economy

BY **NIMA DORJEE, P.ENG., FEC, FGC (HON.)**
APEGA President

It's indisputable that the Alberta economy is showing signs of recovery. But this time, the upswing is gradual, perhaps even fragile. The tenuous future of the Trans Mountain pipeline expansion makes that abundantly clear. And as we all know, statistics never tell the whole story.

I'm not an expert in job market analysis, but I do have some related experience. During my time at the University of Calgary, I helped more than 3,500 engineering students with their career choices. Most recently, I led the resettlement in Canada of 1,000 Tibetan refugees. I've also been hearing directly from members about their career challenges. So here's my take on the situation.

Being creative about career choices is particularly important for all of us in this economic climate. Regardless of whether you are—or were—employed in oil and gas, you should look around at what else is going on, in everything from artificial intelligence to renewable energy. We should use this opportunity to think carefully about what our work means to us. Is it merely a source of income? Or is it something more? Is there something you're passionate about that, career-wise, you've been ignoring or putting on hold while life happened?

I encourage you to think big and broad. Our skills as engineering and geoscience professionals go far beyond our specializations. And of course, I also encourage you—implore you, in fact—to continue to exhibit the professionalism that serving the public interest demands of you. More on that later.

OUR SALARY SURVEY

Alberta's gradual recovery is clearly reflected in the summary version of the *Value of Professional Services*,

prominently featured in this edition of *The PEG*. This document, a.k.a. the salary survey, is among the most popular of our reference materials. Who doesn't want to know the going rate for their work?

Most employers we surveyed this year—a higher percentage of them than last year, in fact—predict salary and staffing increases. No massive change is reflected in recent salaries, however. Average actual increases over the last four years range from 2.6 per cent to three per cent, which tracks close to cost-of-living increases.

Alberta's seasonally adjusted unemployment rate was 8.6 per cent in July 2016. It had decreased to 6.7 per cent by July 2018. That's a positive indicator, although the numbers do not reflect those Albertans who have dropped out of the job market entirely. That always happens during recessions, economists say—some people simply give up, so recoveries are not always as strong as they appear.

If you're, say, a 50-plus-year-old professional member laid off by an oil company a few years ago, you may well be continuing to struggle for consistent employment. I live in Calgary, so I connect with members in this situation all the time. Baby boomers take their breadth of knowledge and experience to the job market, but employers tend to think of junior professionals, rightly or wrongly, as more adaptable, affordable, and energetic. Even government incentives to encourage the hiring of skilled employees tend to focus on younger adults.

Recent graduates, perhaps, are too much of a risk for many employers. The tight market seems to affect their end of the spectrum disproportionately, too. I don't have the data to support this, but I do hear often from recent graduates who say they're struggling to find jobs.



THE GIG ECONOMY

In all of our age demographics, what will the future employment landscape of Alberta look like for professional engineers and geoscientists? How will we all continue to practise ethically, no matter what type of employment we secure?

Google “the gig economy” and you’ll confirm is that it’s a buzzy term and that it’s not narrowly defined. The gig economy can encompass a variety of project-based, full- and part-time positions—everything from Uber driver to manager of a multi-million-dollar build. Some reports say the gig economy is on the upswing and taking up a growing portion of the traditional economy, given the ubiquity of mobile apps and other information technology to make such arrangements simpler. Others say it’s just a new label on something that’s always been ebbing and flowing in the economy.

BMO Wealth Management is unequivocal. “The gig economy in Canada is growing at a phenomenal rate that shows no signs of slowing down,” the division of the banking giant states in the July 2018 Canadian edition of *Insight*. BMO backs up this assertion with a document from a fellow giant, the employment agency Randstad, called *Workforce 2025: The Future World of Work*.

Meanwhile, over at *The Economist*, a recent Bartleby column states: “It is now nearly axiomatic that people will work for a range of employers in a variety of roles over their lifetimes, with a much more flexible schedule than in the past. Opinion is still divided over whether this change is a cause for concern or a chance for workers to be liberated from the rut of office life.”

As an APEGA member, a gig economy could serve you well. “The best placed are skilled professionals and artisans whose work is in demand from a wide range of customers,” *The Economist* opinion piece says.

With the right advice and approach, the gig economy is not something to fear. But if you’re going to embrace it, it’s up to you to find your own “wide range of customers” that the magazine speaks of.

EMERGING AND MATURING INDUSTRIES

While the world will continue to depend on oil for the foreseeable future, tectonic shifts (metaphorically speaking) are forecast in the transport sector. With the

use of electric cars and autonomous vehicles spreading, most experts predict that we will reach peak demand for oil within the next 10 to 20 years.

New opportunities continue to arise, however. For example, a grower of medical cannabis in Edmonton recently said that Alberta is a great place to locate. The reason? The economy has freed up skilled oilpatch workers who know how to build high-end facilities. (But you might want to consider potential problems travelling to the U.S., if you enter this industry!)

All kinds of technological revolutions are underway, from the way we monitor the safety of our pipelines and plants to the way we interact with corporations, friends, family—and smart but inanimate things. Keep your eyes on research at our universities and pilot projects in the private sector.

Renewable energy offers good, meaningful jobs. The think tank Clean Energy Canada recently reported that \$25 billion has been invested in the sector in Canada in the past five years. Employment is up 37 per cent in renewable energy over the same period.

I hear often about the roadblocks renewable energy faces. The big one, of course, is the lack of battery storage for intermittent production. That's the deal breaker, according to the naysayers.

My reply? Humans overcome obstacles. That's what we do. Our private and public investment in renewable energy will pay off, and to think that it won't do so is short-sighted and defeatist. In any case, we have no choice. Carbon resources won't last forever, and the human race's effect on climate must be addressed aggressively.

LINKS

[The Economist: The Insecurity of Freelance Work](#)

[Randstad Workforce 2025](#)

[BMO Wealth Insight: The Gig Economy](#)

[Rethink: The Transportation Disruption](#)

[Keeping Up with CPD](#)

[APEGA Career Resources](#)

[Secondary Professional Liability Insurance](#)

[President's Visits](#)

PROFESSIONAL RESPONSIBILITIES

These are fascinating times, really. And they continue to demand strong self-regulation. If you get absorbed in some new career, perhaps by becoming your own boss and capitalizing on the gig economy, always put the public first. Broaden your scope as you need to, of course, but do so in a professional and ethical way.

If you need training in new areas, get it. Regardless, maintain your mandatory Continuing Professional Development program and report your hours. And remain licensed with APEGA. To practise legally, you must have a licence.

Also, remember you have a professional obligation to report what you believe to be illegal practice, by members and non-members. Professional engineers and geoscientists are insured for some of the costs incurred from whistleblowing, under the mandatory Secondary Professional Liability Insurance program. I'm not going to pretend that whistleblowing is an easy step to take, particularly in a tight job market. But being a professional is not about choosing an easy path.

With effort, the support of your professional community, and the services and products offered by APEGA, you can make this new Alberta economy right for you—while continuing to serve the public interest.

I'M LISTENING

As your President, I am passionate about the development of our engineering and geoscience community. Part of that process is hearing from you about your challenges, successes, hopes, dreams, opinions—whatever you want to share.

I'm making the rounds across Alberta, during President's Visits to communities in each branch. Come out and meet me at the venue we've booked. Hear me speak. Ask me questions. Chat with me.

Watch your inbox for your branch newsletter for more details on the President's Visits or check the APEGA website under Events.

Questions or comments?

president@apega.ca

Jumpstart Your Autumn Calendar With a Commitment to Success

BY **JAY NAGENDRAN**, P.ENG., QEP, BCEE, FEC
APEGA Registrar and Chief Executive Officer

Leaves are changing colour and will soon carpet the ground. Ominously, furnaces are kicking in, and in no time the mornings will legitimately qualify as bone chilling. But autumn isn't entirely about dreading what's to come. It can also be looked at as the beginning of a new year, and not just for fulltime students.

Many future engineers and geoscientists view this season as bursting with hope and promise. Perhaps you can adopt some of that school's-in-enthusiasm (if you haven't already) and dedicate it to our shared enterprise: the successful self-regulation of engineering and geoscience in Alberta.

We are in this together. You regulate your own practices of engineering and geoscience. We regulate you in the overriding sense. My staff and I are charged with turning into action the strategic direction we receive from Council. A Council elected by you, I should add.

Using our complementary roles as a lens, let's look at how APEGA is successfully regulating the professions—and what you can do to support us and your own practices.

Two side notes. More in-depth material on the items mentioned here can be found on our website. To find out more, check out the link box that appears with this column. Also, you'll no doubt notice that some items aren't regulatory in the strictest sense of the word. No mistake there. I believe a strong supporting suite of membership services is essential to successful regulation.

SUCCESS THROUGH PROFESSIONAL DEVELOPMENT

What We're Doing: APEGA offers pertinent professional development sessions, skillfully delivered

by qualified presenters. We're taking registrations now for a great fall lineup. Most of our offerings centre on value-added sessions that are designed to appeal to a large cross-section of the membership. We also avoid competing with sessions already offered capably and affordably by technical societies and others.

Our fall sessions, underway now, cover project management, financial performance, ethical decision-making, leadership, communication for success, and more. Because of its broad importance and relevance to many industries, one technical session is on tap, called *Isolation Techniques in Piping Systems to Prevent Major Loss Incidents*.

We don't just believe in lifelong learning. We—and the legislation that guides us—insist upon it. Right now, we're working hard to make our Continuing Professional Development (CPD) program more effective. Last year, in a 2017 pilot project to optimize the administration of mandatory CPD, we reviewed and studied the detailed submissions of 100 members.

What we learned is that reporting needs to improve. A number of causes are behind this, one of them being that members don't always understand how or what to record. We're committed to making the whole process clearer to members. We don't have the details worked out yet, but part of that will be a modernization of our CPD reporting tools.

What You Can Do: Take charge of your personal professional development program. Identify gaps in your skills, whether technical or non-technical, and find good courses and sessions to fill them.

Have you been ignoring the reporting requirement under our CPD program? Face up to it now. Learn how to properly categorize and report your CPD hours. It



will likely be far less daunting than you imagine. In fact, there are probably things you are already doing, like reading technical articles in magazines, that legitimately qualify.

SUCCESS THROUGH STANDARDS AND GUIDELINES

What We're Doing: We're continually evaluating APEGA's collection of practice standards and guidelines. Currently, three standards are in line for major updates. This process involves developing, revising, and improving these important documents. It includes member consultation, and it draws on the wisdom of subject-matter expert panels.

Standards and guidelines are important. They expand upon the provincial legislation that enables us to operate, the *Engineering and Geoscience Professions Act (EGP Act)*, by detailing the expectations, obligations,

and responsibilities of our licensed professionals and permit holders.

Right now, one of the three revamped standards I alluded to, the *Practice Standard for Authenticating Professional Documents*, is in the member consultation stage. Information sessions about a draft of the standard are happening now in several Alberta centres and online.

Authentication can be challenging, especially in the online, digital space. We are well aware that this standard is important to many of our members and needs this update.

What You Can Do: Register now for an information session about the authentication practice standard. Read the draft and check out other online materials. Take our online survey on the standard.

Also, make sure you consult and understand whatever standards and guidelines apply to your area of practice. If you don't understand something, reach out to our Professional Practice Department. The numbers and types of questions we receive help us determine what needs to be addressed in our review process.

SUCCESS THROUGH LEGISLATION

What We're Doing: For now, what we're doing is taking some deep breaths. APEGA's institutional understanding of the *EGP Act* has, I strongly suspect, never been as deep and detailed as it is now. That's one of the positive consequences of having just completed an exhaustive review that began in 2014.

We have presented the Government of Alberta (GOA) with volumes of supporting material. The ultimate goal is to have the GOA approve a new *EGP Act*, instituting its first major revamp since 1981. We can't speak to when that approval will happen, because the *EGP Act* belongs to the province. Nor can we speak to which of our 80 proposed legislative changes will be accepted or to how the province might revise them. But no matter what the outcome, this process has been thoroughly rewarding.

It connected us to members in an unprecedented way. More than 6,000 stakeholders shared their input in six rounds of consultations. A champions collaborative, made up of volunteers, worked at the branch level to gather the input from the grassroots of

the organization, in and beyond our major geographic centres. And we learned how we can work within the legislation we have to better serve the public interest.

What You Can Do: If you took part in the legislative review, please pat yourself heartily on the back! Continue to champion the work we've done—with your colleagues and teams, your peers, your neighbours.

If you haven't taken part in the process, review the materials on our legislative review website. You'll come away with a great education on the detail and scope of our review, the methodology we used, and the content of the recommendations approved by your Council.

SUCCESS THROUGH CELEBRATING GREATNESS

What We're Doing: Every year, we present our Summit Awards to some of the shining examples of engineering, geoscience, and overall good works within our professional community.

What You Can Do: Nominate a deserving member or project now. Nominations close very soon, on September 21, for the 2019 awards. Act fast!

SUCCESS THROUGH VOLUNTEERING

What We're Doing: Volunteering is a key component of self-regulation. APEGA leverages the expertise and enthusiasm of members just like you to guide us and support us in our regulatory and non-regulatory work. Much of this work goes on around the boardroom table, but we also need help with events designed to nurture the public's understanding and imagination, when it comes to engineering, geoscience, and other facets of science and math.

What You Can Do: Check out the volunteer opportunities we're currently offering. We can't guarantee placement in the volunteer position you apply for, but we may be able to find another placement that interests you just as much.

SUCCESS THROUGH BRANCH AND COUNCIL SERVICE

What We're Doing: We're supporting our 10 branches in numerous ways, as they connect with their members through luncheons, professional development events, and other activities.

Also, in support of the Nominating Committee and as directed by our legislation, APEGA's staff seek nominations yearly for the annual Council election. Deadline for nominations for the 2019 election is September 27.

What You Can Do: Consider serving on a branch executive. Branches are great stepping stones for further APEGA involvement, including service on Council. And if you are ready for the challenge, consider seeking a Council nomination.

This column is only a partial description of how you can ramp up your engagement with APEGA. I didn't even mention, for example, the cover story of this edition, the publication of the summary version of the *Value of Professional Services*.

So there you have it. In case you thought fall was just about the leaves!

LINKS

[Events & Professional Development Calendar](#)

[Learn More About Mandatory CPD](#)

[Our Complete Library of Practice Standards and Guidelines](#)

[Register Now for Authentication Standard Info Sessions](#)

[Legislative Review Detailed Information](#)

[Prepare a Summit Awards Nomination](#)

[Help Regulate and Build Your Professions Through Volunteering](#)

[Run for Council](#)

Questions or comments?

Registrar_CEO@apega.ca

Run for APEGA Council in Four Steps

STEP 1

You decide to run

- Familiarize yourself with the [nomination process](#)
- Read [Councillor Terms & Duties](#)
- Self-assess your skills and experience against the [10 top-ranked Council needs](#)



STEP 3

Nominating Committee reviews your nomination

- Nominating Committee reviews the information you submitted
- You attend an interview
- Nominating Committee decides whether to [recommend](#) you



STEP 2

You complete the nomination section in the [Member Self-Service Centre](#)

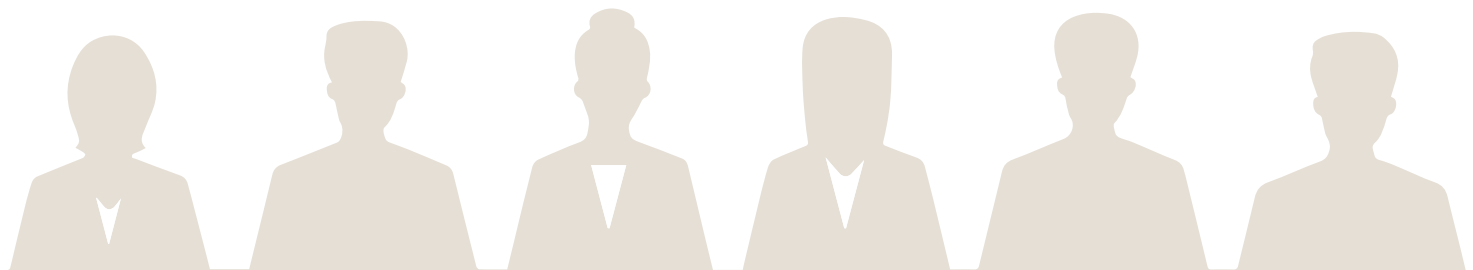
Your nomination must include:

- support from at least 25 professional members in good standing
- a current resume or curriculum vitae
- an explanation of why you want to run for Council
- a self-rating of your skills and experience

4

Congratulations! Your name is on the ballot

- Names of candidates who successfully fulfill the nomination requirements will appear on the ballot.
- Those who received a recommendation from the Nominating Committee will have an asterisk beside their names.





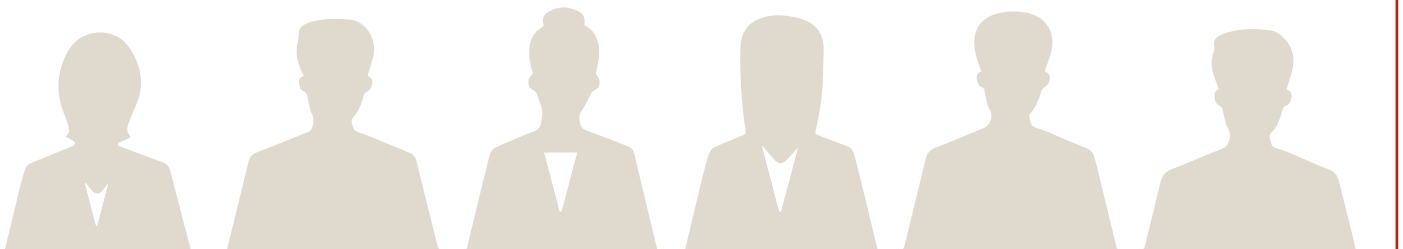
COUNCIL NOMINATIONS

Nominations for your 2019 Council close on
Thursday, September 27, 2018
at
4:30 p.m.

-
- Council nominations are accepted electronically through the [Member Self-Service Centre](#).
 - Based on the [10 top-ranked skills and experience](#) needed for the upcoming Council, the Nominating Committee will review and assess candidates to recommend.
 - The names of all candidates who successfully fulfill the nomination requirements will appear on the ballot. It will also indicate which candidates received a recommendation from the Nominating Committee.
 - Information about candidates will be distributed to members in December.
 - The 2019 APEGA election will run from February 11 to March 14, 2019.

MORE INFORMATION

[Member Self-Service Centre](#)
[Running for Council webpage](#)



Authentication Standard Information Sessions Underway Now—Online and Across Province

An intensive series of information sessions is underway to receive feedback and share details about a draft of APEGA's *Practice Standard for Authenticating Professional Documents*—a standard that addresses one of the most talked-about challenges members face in their careers, particularly in the digital space. The draft is the result of a thorough review by a group of professional members brought together for the job, the Authentication Standard Subject-Matter Expert Panel.

The sessions, which continue until November 1, are a critical stage in the review process. Members are encouraged to register, review our online materials (including the draft), and participate in our survey.

Changes addressed so far in the draft involve, among other things:

- defining professional work products and allowing professional members to better determine what should be authenticated
- defining a new term—the Responsible Member's validation of professional work product
- standardizing authentication and validation formats to allow professional members, permit holders, and the public to easily identify the authenticator and date of authentication, and the validator and the date of validation
- discussing the uses of electronic and digital technology to authenticate professional work products
- setting the requirements for authentication of professional work products imported into or exported from Alberta
- providing considerations for the retention and storage of authenticated

LINKS

[Review Materials on Draft Standard](#)

[Register Now for an Information Session](#)



Help Unlock Someone's Full Potential!

Discover the rewards of mentoring. Support another Member's professional growth while earning CPD hours.

With APEGA's online matching software, you can connect with a mentee in a few clicks.

Become a **mentor** with APEGA's Mentoring Program and share your expertise.

Sign up at www.apega.ca/mentoring.



Now Offered
Province-wide

Extend Your Reach

APEGA Professional Development

FEATURED EVENT

Project Everest: Reaching New Heights in Project Management

Climbing Mount Everest is considered one of humankind's greatest feats of endurance. The two-month expedition to the top of the world's highest peak is a project filled with unparalleled physical and mental challenges, through some of the most extreme conditions imaginable. Alan Mallory took on Everest and set a world record when he, along with three members of his immediate family, reached the summit. This dynamic session focuses on developing project managers and strengthening project teams.

Calgary, December 14, 2018

Advanced Ethical Decision-Making

Edmonton, November 7, 2018
Calgary, October 2, 2018

Construction Contract Administration for Projects

Edmonton, October 5, 2018
Calgary, October 18, 2018

Fundamentals of Project Management

Edmonton, December 11, 2018
Calgary, December 13, 2018

Managing Financial Performance

Edmonton, November 13, 2018
Calgary, October 20, 2018

Assertiveness: A Powerful Communication Skills For Career Success

Edmonton, December 17, 2018
Calgary, October 26, 2018

Leadership Training

Edmonton, November 16, 2018
Calgary, November 2, 2018

Isolation Techniques in Piping Systems to Prevent Major Loss Incidents

Edmonton, September 14, 2018
Calgary, September 21, 2018

Visit apega.ca/members/events.ca

Register Now

Buyer Beware Applies to the Professional Development Marketplace

BY **TIMM STEIN**, P.ENG.,
AND **AARON GEREIN** (P.ENG.-SK)

Continuing professional development (CPD) is critical to the success and self-regulation of APEGA professional members. It enhances our knowledge and expertise in a variety of fields, and it provides us the opportunity to deepen our understanding in areas we feel are our weakest. When members buy the services of CPD providers not affiliated with APEGA, are we getting what we seek? Or are we spending our hard-earned dollars on courses and seminars that add little to our knowledge and understanding, and therefore undermine not only our needs but also our service to the public interest?

From professional practice to structured courses, from presentations to self-study—there are numerous ways for members to accumulate [CPD hours](#). APEGA has excellent materials available that explain what your options are and how to run your personalized CPD program.

APEGA and its sister associations across Canada are responsible for licensing and regulating professional engineering and geoscience practices in their respective provinces and territories. For most of them, this includes mandatory CPD for professional members. APEGA was, in fact, the first engineering and geoscience regulator in the country to require mandatory CPD, which it launched in 1997. Mandatory CPD is included in the *General Regulation*, under APEGA's enabling legislation, the *Engineering and Geoscience Professions Act*.

Annual reporting plays a key role in the accumulation of CPD hours. In most cases in Canada, annual reporting is mandatory but based on the honour system. This means that the professional association does not monitor or validate the hours that a professional member claims, unless the member's program is chosen for specific review.

Moreover, professional associations do not monitor or verify the accuracy or the quality of courses offered by providers they're not affiliated with. It's up to association members to do their own research on whether third-party providers are offering quality content—or subpar content.

Third-party providers can have high-quality offerings, but there are some providers that offer subpar courses and content. Subpar content not only negatively affects members, their CPD, and their future professional practice, but it also affects the professional associations they belong to. Associations such as APEGA use a vetting process to select third-parties for their own professional development offerings. *See related story*. However, there is no designated entity to regulate, endorse, or preapprove the quality of CPD courses outside of APEGA's offerings.

CPD courses not affiliated with APEGA are often taught by fellow professional engineers and geoscientists. They are experts in their respective fields, so this is a great way to promote CPD, mentor other professionals, and to promote the practices of engineering and geoscience. However, the potential for issues from these CPD courses is apparent as there is no one verifying them for accuracy, consistency, or quality.

For instance, third-party providers may promote a technical course in a way that makes it come across as attractive and valuable, but then conduct the course in a way that is simply not as advertised. Even more problematic, professional members can report the CPD hours from a subpar CPD course, and the professional association in charge of regulating the members is, in

CONTINUED ON PAGE 16 >>

Looking for Quality Professional Development?

Hint Number One: Look to APEGA

If you're looking for proven and appropriate professional development opportunities, APEGA is an excellent provider to include in your search. We base our selection of sessions on:

- the appropriateness of session content
- the expertise and presentation skills of providers
- the quality of delivery and materials

We evaluate content and providers before, during, and after their sessions. We start by reviewing materials and contacting multiple sources for references. Then we improve sessions and coach providers, drawing upon our own expertise and session monitoring. Afterwards, we analyze the results of participant surveys.

It's a cycle of continuous improvement. We use what we learn to develop and sharpen the focus of sessions, and, when necessary, drop providers entirely.

[APEGA PD sessions](#) are affordable and designed to support your own program of self-improvement, while you meet the requirements of APEGA's mandatory Continuing Professional Development (CPD) program. We base content on six categories of competence:

- Technical
- Communication
- Project and Financial Management
- Team Effectiveness
- Professionalism
- Social, Economic, Environmental and Sustainability

To these six, we've added a seventh PD category: Career Development.

For the most part, our PD is offered in three terms: fall, winter, and spring (which includes the conference portion of the APEGA Annual General Meeting & Conference). We are also open, however, to holding sessions in the summer, if there's enough demand.

Our fall schedule kicked off earlier this month. A full listing appears on Page 13 of this *PEG* and online at

apega.ca, covering everything from project management to assertiveness in communication.

YOUR OWN VETTING PROCESS

Your personalized program of professional development will, of course, require that you go beyond APEGA to meet some of your needs. Following are a few hints to help you find appropriate providers.

1. Whenever possible, attend sessions offered by established learning-oriented, professional, or technical organizations. They know their business, and they care about their reputations and the quality of their programs.
2. If you don't know a lot about a provider or an organization offering PD, find out. Search the web. Speak to past participants. Ask a provider for references and contact them.
3. Identify the takeaways you need and want.
4. Check with the provider to find out whether the content meets your needs, as you've already listed them. Ask for a presentation outline.
5. Ask specific questions of a provider so you know even more about what to expect. Does the presentation include activities and participation? If so, please expand. Are there takeaways, such as copies of the slide deck? Is there proprietary information that the provider will not share?

SUGGESTIONS?

You can trust APEGA to deliver quality, professional content. Are we meeting your needs? Is there something you would like us to present that you haven't seen in our calendar? Are you a presenter seeking more information on possible inclusion in our PD offerings?

Reach us at pd@apega.ca

CONTINUED FROM PAGE 14 »

most cases, none the wiser. This is fantastic for those who want to open a business and reap financial reward from mandatory CPD—while forgoing morals and the ethics APEGA and its sister associations promote and uphold.

The following example demonstrates this issue. Several professional engineers registered for a course offered by the third-party provider. The course description was very detailed and claimed to provide extensive background with examples, and it was taught by an experienced, Canadian-licensed professional engineer with more than 10 years of expertise in the relevant field. The course appeared legitimate and valuable, based on its offerings. However, the opposite turned out to be true.

Following is a short summary of what the course turned out to be.

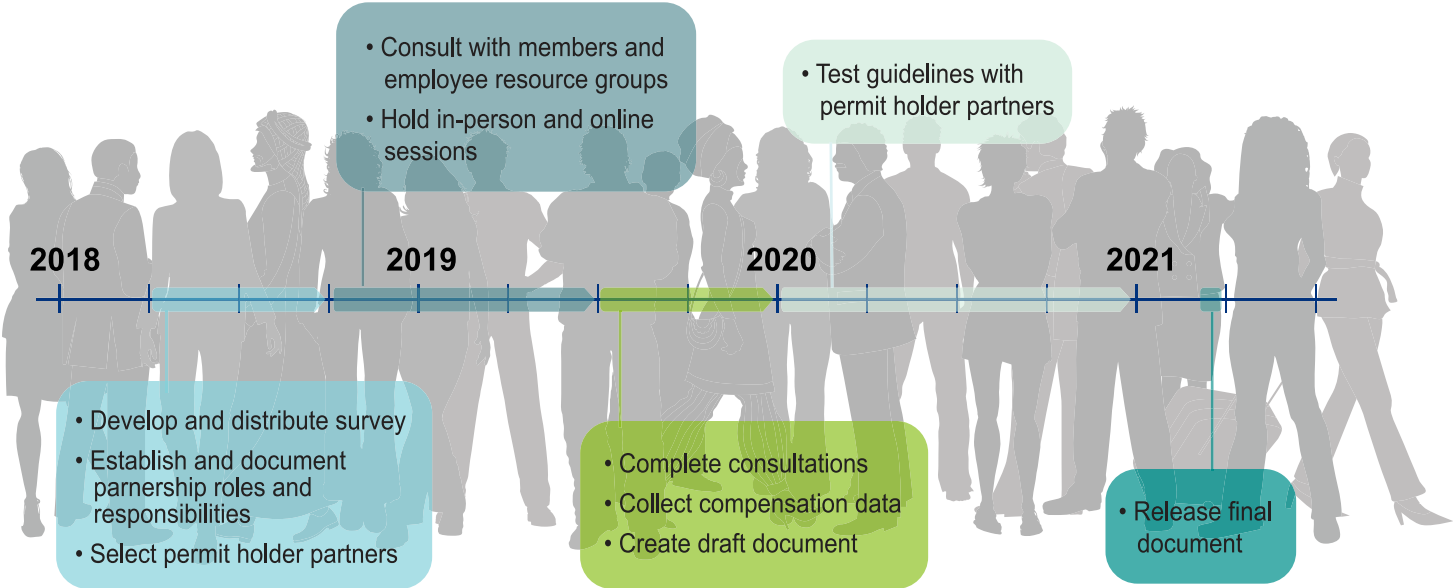
- The quality of the material was subpar at best.
 - The instructor merely flipped through a slide presentation without going into necessary detail.
 - Several topics promised in the course syllabus were not delivered.
 - Detailed practical examples were plagued with half-solutions.
 - References to proprietary software were made throughout the course—none of it explained in detail.
 - The final answer to example questions was given, but calculations supporting the answer remained invisible.
 - Recordings to supplement lecture notes were not provided—meaning that participants wanting supplementary material were limited by how quickly they could take notes.
 - The total length of the course was a fraction of what was advertised.
 - The instructor littered the course with advertisements, touting solutions and other consulting services from their own consulting firm.
- Participants challenged the instructor on the above issues, but their claims were sloughed off and their questions left unanswered, with the instructor making excuses for any wrongdoing.

When confronted by participants, neither the instructor nor the provider acknowledged any wrongdoing. Several emails and phone calls ensued, with participants demanding the opportunity to file an official complaint and requesting compensation for being misled by false advertising. Their demands and requests were ignored.

All of this emphasizes the need for professional members to do their homework—however, this isn't just a case of *caveat emptor*. This case study highlights a need among members for assistance in monitoring the quality and accuracy of CPD courses. It appears that providers can hide behind a corporate veil, provide subpar CPD courses to professional members, charge the same amount that other higher-quality course providers charge, and get away with it. This is not to say that all such providers are illegitimate. For those that are, however, there is little to stop them from reaping financial rewards from mandatory CPD reporting while providing nothing of value.

This poses problems for associations and their members. On one hand, professional associations are required to regulate continuing professional development. On the other hand, professional members are required to uphold their *Code of Ethics*, which includes incorporating CPD and ongoing training in their careers, as required by legislation. But if no one regulates third-party providers, and professional associations are not reviewing all CPD programs, what is stopping professional members from simply purchasing CPD hours without receiving any actual benefit? Doesn't this undermine our professional practice and our service to the public interest?

Timm Stein, P.Eng., is Civil/Structural Manager and a principal with T2M Engineering Ltd. in Calgary. Aaron Gerein (P.Eng.-SK), Planning and Design Engineer, works for the Government of Saskatchewan in Regina.



APEGA Receives \$350K for Workplace Diversity and Inclusion

APEGA is stepping up its efforts to improve diversity and inclusion in the workplace, thanks to a three-year, \$350,000 grant from the Status of Women Canada. The association is one of three Alberta organizations awarded funding for projects that address root causes of economic insecurity for women in Canada.

[Status of Women Canada](#) is a government organization that promotes economic, social, and democratic equality for women.

We'll use the grant to examine workplace barriers facing female engineering and geoscience professionals—related to pay equity, hiring practices, advancement opportunities, and more.

“Data collected during the study will help us develop Canada-wide workplace culture guidelines to help all companies, in any industry, create more inclusive workplaces that fully engage women,” says APEGA Registrar & CEO Jay Nagendran, P.Eng., FEC.

The project supports Engineers Canada and APEGA’s 30-by-30 goal to increase the proportion of women in the engineering and geoscience professions to 30 per cent by 2030. Currently, about 13 per cent of professional engineers and 19 per cent of professional geoscientists in Alberta are female.

We want to ensure that women currently working in the professions, and those entering the professions in the future, don't face unintentional systemic barriers. We want all members to be valued, welcomed, and included in the workforce.

PARTNER ORGANIZATIONS

We are collaborating with other organizations that champion diversity and promote science and engineering to girls and women. By engaging with these groups, we can use their expertise and avoid duplication of previous work. Partners we've begun consulting with are:

- Schulich School of Engineering, University of Calgary
- Canadian Coalition of Women in Engineering, Science, Trades and Technology
- Alberta Women’s Science Network
- Canadian Centre for Diversity and Inclusion

CONTINUED ON NEXT PAGE >>

School Projects Earn \$50,000 in APEGA Awards

Eleven hands-on, student-led initiatives have received new APEGA grants, giving their teachers that extra boost to energize their lessons with inspiring experiences. The STEM-focused projects are the inaugural winners of APEGA's Innovation in Education Awards, sharing \$50,000 in all.

Among the adventures in learning represented are:

- creating a turbine to charge cell phones
- developing multimedia displays in a community observatory
- programming sensors to optimize plant care in Martian soil
- participating in a new robotics program
- prototyping technologies that can withstand natural disasters
- installing interpretive trail signs to showcase geological, ecological, and Indigenous learnings

"APEGA wants to help expose students to the real-life applications of science, technology, engineering, and math, and the positive impacts that the associated

fields have on the world," says APEGA Registrar & CEO Jay Nagendran, P.Eng., FEC. "We look forward to seeing the results of these projects and hearing how the students engaged in them."

About 850 students in grades 2 to 12, attending 12 different schools represented by seven school boards, will complete their projects in the 2018/2019 school year, kicking off a program that replaces the APEGA Teacher Awards. Through the APEGA Innovation in Education Awards, we continue to celebrate exceptional teachers—while helping them implement larger STEM initiatives.

Innovation in Education is part of APEGA's K-12 Outreach Program, which strives to increase awareness and excitement for engineering and geoscience topics and associated careers. Each chosen initiative contains activities that focus on engineering or geoscience and relate to realistic applications that could have a positive impact on the students' communities.

APEGA members are volunteering to mentor students and act as subject-matter experts.

CONTINUED FROM PAGE 17 >>

KEY OUTCOME: WORKPLACE CULTURE GUIDELINES

By the end of the three years, we'll release a comprehensive document, with case studies, which can be used by APEGA permit holders and other businesses interested in changing their workplace culture. Topics will include:

- inclusion
- hiring practices
- wellness strategies
- pay equity
- training and advancement opportunities
- employee resource groups

It's been proven that diverse workforces are more successful and innovative. APEGA wants to support our

permit holders to design positive cultures, so they can be leaders and innovators in their fields.

NEXT STEPS

Over the next three years, we'll continually seek the support of members and permit holders to ensure the project's success.

We will soon launch a survey to gather qualitative and quantitative information from current and past APEGA members to help us understand their employment experiences and challenges. We'll also work closely with engineering and geoscience employers, which will help us test and modify our guidelines to ensure they're feasible and achievable.

To take part in our survey or to volunteer your organization to test the new guidelines, please contact outreach@apega.ca.

Movers & Shakers

FACES OF SCIENCE INVESTMENT I
Lina Kattan, P.Eng., PhD, (right)
melds with traffic at a University of
Alberta lab.



-photo courtesy University of Calgary

RESEARCH FUNDING FINDS A HOME AT THE UNIVERSITY OF CALGARY

Three Schulich School of Engineering professors have more weight in their research wallets after the Natural Sciences and Engineering Research Council of Canada (NSERC) named them as recipients of two of its grant programs: the Collaborative Research Training Experience (CREATE) program and the Strategic Partnership Grant (SPG).

Lina Kattan, P.Eng., PhD, Urban Alliance Professor in Transportation Systems Optimization, received \$1.65 million through CREATE to support researching the effect heavy use of electric cars will have on electrical grids, parking, air quality, and traffic. Her program, called Integrated Infrastructure for Sustainable Cities, focuses on preparing the next generation of engineers

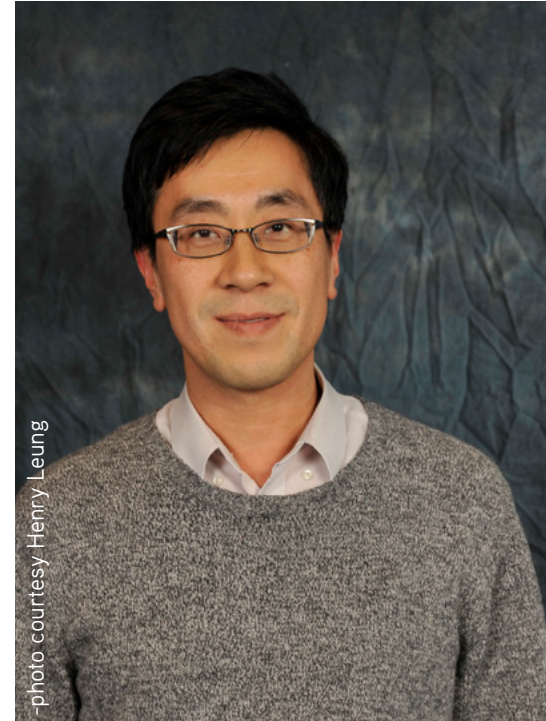
for the future innovation, integration, and sustainability necessary in building resilient urban communities.

The training covers more than transportation. Water, waste, and energy systems are also included. And Dr. Kattan's work also involves researchers from the University of Calgary, the University of Waterloo, the University of British Columbia, and the University of Victoria. It's supported by the **City of Calgary**, the Canadian Urban Transit Research and Innovation Consortium, **Stantec**, and Alberta Transportation.

Edward Roberts, P.Eng., PhD, a professor and the Associate Head of Research in the Chemical and Petroleum Engineering Department, received \$554,300 from the NSERC SPG for his work developing an electrochemical technology to remove multiple contaminants at one time from produced water in oil and gas processes. The treatment will also reduce



-photo by Fritzology



-photo courtesy Henry Leung

FACES OF SCIENCE INVESTMENT II AND III

Edward Roberts, P.Eng., PhD, (photo left) and students look for better ways to remove contaminants from water; and Henry Leung, P.Eng., PhD, who wants to bring human-like decision processes to data analysis, chooses a classic pose.

sludge production and reduce use of additives. Working with teammates Milana Trifkovic, PhD, and Anh Pham, PhD, Dr. Roberts wants the treatment to remove contaminants as they are made, increasing water recycle rates and lessening effects on the environment.

Canadian Natural Resources Ltd. and Ground Effects Environmental Services are collaborators in the project, which could eventually be modified to work in the recycling of industrial wastewater, potable water, and greywater.

Henry Leung, P.Eng., PhD, a professor in the Department of Electrical and Computer Engineering, received \$505,500 from the NSERC SPG for his research on software that emulates human decision-making when analyzing large chunks of data. Organizations using big data typically receive it from multiple sources and in various formats, leading to irregularities. Detection of those anomalies is hindered by their tendency to change over time.

Dr. Leung is working on a system that will learn and change to keep up, enabling the software to monitor and analyze data in real time. The software is being

developed with Defence Research and Development Canada, **General Dynamics Mission Systems–Canada**, **Hifi Engineering**, and Larus Technologies.

CREATE funding recipients get up to \$1.65 million over six years to improve training and provide relevant experience for students and postdoctoral fellows by encouraging collaboration, addressing research challenges, and aiding new researchers in becoming productive employees.

Through SPG, the Government of Canada is investing in 80 projects across the country, to the tune of more than \$78 million. The funding supports researchers working to solve Canadian challenges involving the environment, communications, natural resources and energy, and manufacturing.

Says Kirsty Duncan, Minister of Science and Sport: “We are investing in [the recipients] because we know that when we invest in science and research we are investing in Canadians. The bold ideas your innovative partnerships will generate will have an important impact on our economy, creating good jobs and unique training opportunities for scientists and engineers across the country.”

SATELLITE MISSION LAUNCHES U OF A GRAD INTO SPACE CAREER

Space really is big in our members' lives, these days, as any regular reader of *Movers & Shakers* surely knows. Here's a follow up of sorts to an *M&S* item we ran in the summer.

Tyler Hrynyk, a former university student member of APEGA, is still aiming for the stars. Fresh off sending a satellite into space with the rest of his University of Alberta AlbertaSat team (aforementioned summer item), he has been handpicked to join one of the world's leading companies in the small satellite market, Innovative Solutions in Space.

Mr. Hrynyk joined the AlbertaSat team during his first year of engineering, becoming the student responsible for controlling and communicating with Ex-Altia 1, the cube satellite the team designed, built, and sent into orbit last April. "I joined the AlbertaSat team because I thought it would be a cool, fun distraction," says Mr. Hrynyk in an interview with the *U of A's folio* magazine. "Little did I know I would become one of the project managers and that I'd be flying the spacecraft. It changed the course of my career."

He and the other Ex-Altia 1 team also made some history. Their project was Alberta's first space deployment. Ex-Altia 1 was one of 50 cube satellites built by students around the world, and it has been making the team proud. Designed to study extreme space weather, in the last year the satellite has captured a massive solar flare from the surface of the sun—one of the



OUT OF THIS WORLD

Recent U of A graduate Tyler Hrynyk—a student member of APEGA when he attended university—has been invited to join Innovative Solutions in Space, a Netherlands-based startup focused on sending satellites into orbit.

—photo by Jason Franson

most powerful flares in more than a decade—and overcome a number of technical difficulties that required software updates and reboots to keep it alive.

The Netherlands city of Delft is home to Innovative Solutions, which manufactured Ex-Altia 1's metal frame and liked what they saw in Mr. Hrynyk. The company, founded in 2006, has grown to more than 80 employees, all of whom are skilled in space technology and engineering. The company created the job specifically for Mr. Hrynyk, who says his experience with the AlbertaSat team and its members really paved the way for the current opportunity.

"I owe this to everyone else I worked with. Everybody on the team owes something to everybody else," he says. "This project was very hands-on and getting this job would not have been possible without the students I was working with, who

built the satellite and the ground station. Collin Cupido and **Charles Nokes** [an APEGA E.I.T.] did the majority of work building Ex-Altia 1 in the clean room. If they had made even one mistake and the satellite didn't work, I would never have been able to fly the satellite and get this job. It's very much a community-based thing."

Also a point of pride: AlbertaSat is helping the university get noticed on the space engineering, science, and technology stage. "A few years ago, we set out our vision for AlbertaSat, and one [part] was to make Alberta a leader in spacecraft engineering and science. We have absolutely accomplished that. We get emails every day from teams around the world asking us for advice because they know the success we have had. At the university level, in terms of building here in Alberta—we are becoming the hub in Western Canada."

SMARTER AND SAFER ROADS PAVED WITH WELL-FUNDED RESEARCH

It's no secret: good communication makes everything easier. That certainly underlines the mandate of the ACTIVE-AURORA project team, spearheaded by **Tony Qiu, P.Eng., PhD**, as it logs hours researching and testing vehicles that talk with their surroundings to help ease gridlock, improve safety, and increase energy efficiency.

We celebrated Dr. Qiu in the spring edition of *The PEG*. An associate professor with the University of Alberta's Faculty of Engineering and the director of the university's Centre for Smart Transportation, he had accepted nearly \$1 million from Western Economic Diversification Canada in support of his pilot project's

first phase. That initial phase tested various applications of car communication, such as notifying drivers of unsafe speeds and high-collision locations, recommending driving speeds based on traffic, and issuing warnings about pedestrians and whether the vehicle can make an upcoming green light.

Now gearing up for the second phase of the project—namely, security—the team has been awarded a \$500,000 grant from Transport Canada to incorporate a security system that will safeguard information. Breaches are a threat when vehicles send information to each other and traffic management centres. “Developing a security credential management system is an essential technical component to ensure that connected vehicles can securely function and communicate effectively as they become more

widespread,” says Dr. Qiu in a U of A story. “It is a critical component that will help us move one step closer to seeing more of this technology on public roads.”

The ACTIVE-AURORA project is a collaboration of the governments of Canada, Alberta, and Edmonton, the University of British Columbia, and the U of A's Centre for Smart Transportation. The project was launched in 2014, and Phase 2 is scheduled to run until 2020. Test areas are located in Edmonton—on 23rd Avenue, the west leg of the Whitemud, and the northwest corner of the Anthony Henday—and in Vancouver.

TALK AUTO TO ME

The pictured demonstration app is part of the ACTIVE-AURORA project, now in its second phase.

-photo by Aalyssa Atley



UNIVERSITY OF CALGARY CONVOCATION HONOURS STELLAR APEGA MEMBERS

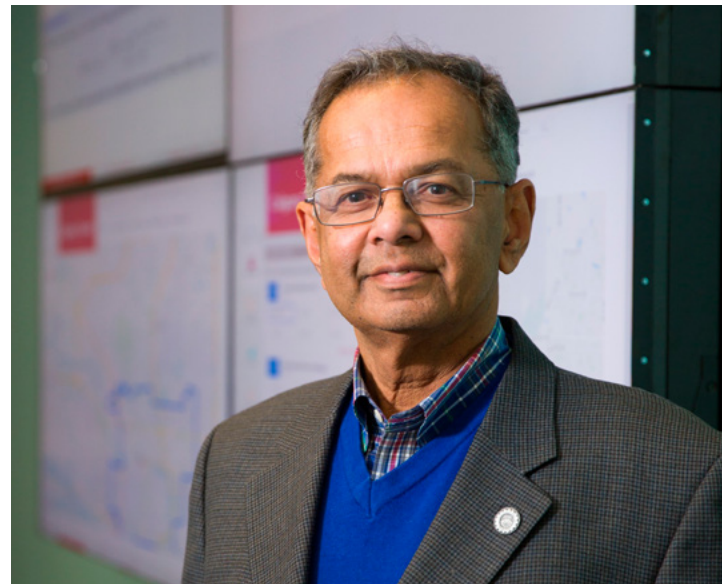
The University of Calgary's June convocation left smiles on the faces of many: among them, a number of faculty, staff, alumni, and volunteers recognized for their service, contributions, and achievements. Two APEGA members with strong APEGA service records were among those honoured.

Kim Sturgess, CM, P.Eng., received an Honorary Doctor of Laws, the highest academic distinction the

Development Authority. A past-president of the Canadian Academy of Engineering, she has received numerous awards. The Women's Executive Network named her one of Canada's Top 100 Most Powerful Women.

With a resumé like that, it's little wonder that Ms. Sturgess is also a member of the Order of Canada.

Upon accepting her honorary degree, Ms. Sturgess implored graduates to live where their hearts are happy, to follow their passion, to honour their profession, and to recognize and encourage their children's interest in science, engineering, technology, and math. "You've been trained and you're ready. This is your time. Good luck."



-photos courtesy University of Calgary

ENGINEERING LEADERS EARN MAJOR KUDOS

Kim Sturgess, CM, P.Eng., (photo left) and Chan Wirasinghe, P.Eng., FEC, FGC (Hon.), PhD, do their professions proud.

university offers. The honorary degree recognizes her outstanding community service and numerous achievements as a CEO, an entrepreneur, and an environmental advocate.

Ms. Sturgess, a former APEGA Councillor, founded Alberta WaterSMART to develop better water management strategies in Alberta. She is also Executive Director of the Alberta WaterPortal Society, working with other organizations to build an increased understanding of water issues, among them management, conservation, and protection. She has extensive experience with startups and technology management, as well as in the oil and gas industries.

Her directorships have added to the success of several groups, including the Alberta Water Council, the Calgary Airport Authority, and the Alberta Economic

Chan Wirasinghe, P.Eng., FEC, FGC (Hon.), PhD, a professor at the university since 1976, received an Order of the University of Calgary for his contributions to the school. He was the Dean of Engineering for 12 years, playing a key part in building the school's international reputation. He helped double student enrolment at Schulich, expanded the internship program, championed the Women in Engineering Initiative, and received accolades for his mentoring.

Dr. Wirasinghe, a former APEGA Councillor and Vice-President, has an Honorary Doctor of Science degree from the University of Moratuwa in Sri Lanka. He's also received a Medal of Excellence in Engineering Education from the World Federation of Engineering Organizations, and he was named Calgary's Citizen of the Year in 2005.



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SURNAME PUN ALERT: A LITTLE GOES A LONG WAY

Canada's economy has taken a kicking the last few years, providing myriad challenges and uncertainties in a volatile market. But it seems the key ingredient to success for new professionals, as well as those looking for a career change, is adaptability.

Each year, JWN, formerly JuneWarren-Nickle's Energy Group, champions a new class of its Rising Stars, honouring a handful of budding professionals who display adaptable and innovative thinking in their roles. One of the members of the Rising Stars Class of 2018 is University of Calgary grad **Matthew Little, E.I.T.**

Mr. Little does not back away from a challenge. When faced with what seems like an impossible decision, he shapes it into an opportunity and forges ahead. And nothing provides a better example of this than his academic record.

A promising football player looking to attend a university that could fulfill his sports goals and offer a quality engineering program, Mr. Little chose the University of Calgary. But the aspiring engineer thought he might like to study business, too. So, he did, adding finance and business courses to a decidedly full roster.

With so many priorities competing for his time and energy, you'd think something would give. Nothing did. Mr. Little was determined to make the most of his time in school and give himself the best possible start to his professional life. He aced everything he put his mind to.

And there's more, as there often is with people like Mr. Little. As a way of encouraging engineering students to consider atypical career paths, he co-founded Unconventional Engineers with his brother and two others at the University of Calgary. By providing seminars, workshops, mentoring, and case studies, Unconventional Engineers exposes students to options such as investment banking, private equity sales and trading,



MATTHEW LITTLE, E.I.T. . .
. . .merging career paths

and business development. It emphasizes career suitability over availability.

"For students, Unconventional Engineers helps them see that there's so much more than just a pure engineering role awaiting them. It gives them the resources to develop their passion or interest. There's also a benefit to employers, who now have direct access to engineering students who bring a different skill set—a very analytical, numeric one—right out of school," he told JWN.

Now a chartered financial analyst (CFA), Mr. Little is also on his way to becoming a professional engineer. "I'm proud of the fact that I passed each level of my CFA on the first try. I'm also happy I did it early on in my career, which allowed me to transition from true engineering to business development and then into investment banking and now equity research. A spreadsheet might tell you that you can do anything, but the reality is quite different. Understanding both the technical and the financial sides helps deliver more grounded, insightful advice."

E.I.T. RECEIVES SUPPORT TO BRING ENGINEERING EDUCATION WORLDWIDE

Alexandra Meikleham, E.I.T., is as passionate about teaching as she is engineering. Working on her master's degree at the Schulich School of Engineering at the University of Calgary, she actively promotes science, technology, engineering, and math (STEM). In fact, she plans to use engineering design and applied education to show young engineers how their work ripples around the world.

Her powerful ambitions have not gone unnoticed. Ms. Meikleham is one of only 10 students to receive a 2018 3M National Student Fellowship. The fellowship, presented by 3M Canada and the Society for Teaching and Learning in Higher Education (STLHE), goes to students in Canada who display outstanding leadership in their lives and at their post-secondary institutions. Each of this year's recipients received \$5,000, along with registration, accommodation, and travel funds to attend the STLHE conference in Sherbrooke, Que. They were also invited to participate in a day-long retreat in Quebec.

"It is an incredible honour to be included in this year's 3M National Student Fellows cohort," says Ms. Meikleham in a Schulich School of Engineering story. "I am thankful to have been supported by a solid group

of mentors and champions, without whom I would have been lost."

Great teachers help turn students into great teachers, and Ms. Meikleham singles out **Ron Hugo, P.Eng., PhD**, a professor in mechanical and manufacturing engineering and the Li Ka Shing Foundation Chair in Engineering Education Innovation. He's responsible for the engineering education program at the University of Calgary. "There are few schools in Canada that are leading in the area of engineering education research and U of C is really at the forefront. My work is only possible because there's a strong support network here, and I've been incredibly impressed with my graduate student experience."

Another supporter in Ms. Meikleham's corner is **Laleh Behjat, P.Eng., PhD**, the professor who advocated for her to receive the award. "She will be one of the leaders who will shape the future of engineering," says Dr. Behjat.



-photo by Dave Brown

ALEXANDRA MEIKLEHAM, E.I.T. . . . sharing her passion for STEM

ALBERTA ENGINEERS JOIN THE ELITE OF THEIR PROFESSION

June was a big month for 59 professional engineers inducted into the Canadian Academy of Engineering (CAE). Nine members of the CAE's class of 2018 are APEGA members:

Dave Collyer, P.Eng.

Naser El-Sheimy, P.Eng., PhD

Fraser Forbes, P.Eng., PhD

Josephine Hill, P.Eng., PhD

Kenneth Robert Johnson, P.Eng.

Suzanne Kresta, P.Eng., PhD

Audrey Mascarenhas, P.Eng.

Joy Romero, P.Eng.

Paul Wynnyk, P.Eng.

"The new fellows are engineers of outstanding abilities and of widely varying backgrounds," says CAE President **Eddy Isaacs, P.Eng., PhD**, also an APEGA member. "What they all have in common is the demonstrated desire and ability to go beyond the normal practice of engineering and contribute in exemplary ways towards their fields and to their communities. We expect great achievements through their participation in the academy's activities."

He continues: "Fellows of the academy have produced major

studies in the fields of education, energy, and the innovation. We look forward with boundless anticipation to how these new fellows will build upon these good works, and explore new and exciting areas of engineering and its impact on public policy."

The CAE was established in 1987 to support distinguished engineers in providing strategic advice on important Canadian matters and helping ensure Canadians benefit from the nation's engineering expertise. Fellows are chosen by their peers based on their years of service and their engineering achievements.

STORIES ON FILM

Who can resist the glitz and glamour of the film industry? Not *The PEG*, that's for sure.

When we last caught up with **Nattalia Lea, P.Eng.**, in time for the spring issue of *The PEG*, she was fresh off winning third place at the Los Angeles Independent Film Festival Awards for *Joe Rat*, a feature animation screenplay she wrote. She was also deep into pre-development for two television series, *Ghetto Moms* and *Lady with the Iron Ring*.

So, what's up this time?

Ms. Lea recently attended the Quickdraw Animation Society's Animation Lockdown weekend, a four-day challenge in Calgary that had participants create and complete an animated film. Taking advantage of the

space, equipment, software, and technical assistance provided by the society, Ms. Lea came up with short called *Dancing Queen's Profile*, using stop-motion and paper cutouts to tell the story of a woman looking for love online.

After premiering in Calgary, the film was picked up by the Strasburg Film Festival in Virginia to be showcased this fall. Ms. Lea hopes to have the film shown at festivals around the world, then to stream it online.

All of this comes after her successful production of a feature-length film she scripted and narrated, *Spikes at her Elbow*, about a female engineering graduate struggling to find her way in a male-dominated profession in the 1970s. And more projects are underway—you may well see more of Ms. Lea and her work, on these pages or a screen near you.

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Applicants must be accepted or registered full-time in a faculty other than engineering, beginning no later than September 2019.

DEADLINE: March 1, 2019

Application form and complete list of criteria at:
www.engineerscanada.ca/awards-and-honours/scholarship-program

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Three TD Insurance Meloche Monnex Scholarships of \$7,500 each

Each scholarship will assist the candidate to pursue studies or research in a field other than engineering. The discipline should favour the acquisition of knowledge which enhances performance in the engineering profession. Candidates must be accepted or registered no later than September 2019, in a faculty other than engineering.

Application deadline: March 1st, 2019

Application forms are available at engineerscanada.ca/awards-and-honours/scholarship-program or by contacting the Engineers Canada Scholarship Program at awards@engineerscanada.ca

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NEW FLOODGATE PLUGS RISK IN HIGH RIVER

After a massive flood devastated High River in 2013, the town created a new berm system to keep rising water at bay. One weakness in the system remained,

however, so this summer the town addressed it by beginning construction of a new, \$5.5-million floodgate.

The automatic, sliding gate is being built into berms on both sides of the road in front of the Centre Street Bridge, locking and sealing on both sides to prevent High River from flooding the town that bears its particularly appropriate name. When the floodgate opens, it will slide into a dike with a small control station. The town expects the gate will be fully functional in October.

A CBC report says the floodgate is not the ultimate fix. Quoting High River Mayor Craig Snodgrass, CBC wrote that there's no immediate funding for a \$40-million bridge replacement. The need for protection will not wait, so the floodgate is the answer for now.

WE'LL TAKE IT FROM HERE

Albertans rallied to bring High River—and many other Calgary and area communities—back from the devastating flood of 2013. Now, the town is about to complete the infrastructure needed to protect it from future flooding.

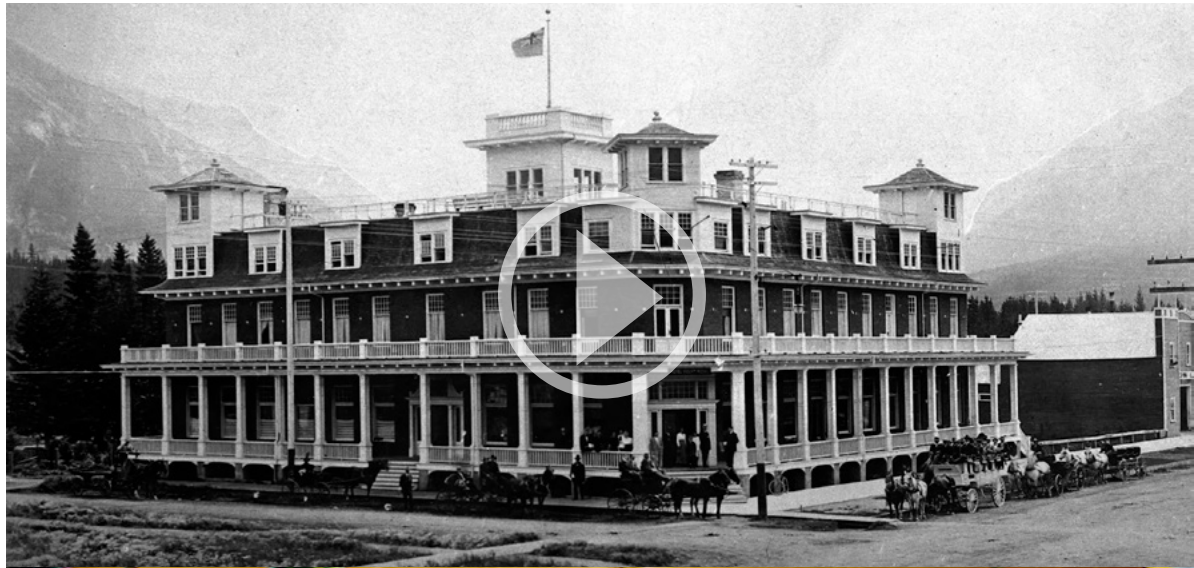


IT'S OLD, IT'S NEW, IT'S OPEN FOR BUSINESS—HERITAGE HOTEL RECOVERS FROM FIRE TO REVEAL ITS MANY CHAPTERS

In the wee hours of Dec. 29, 2016, a fire broke out on the roof of Banff's Mount Royal Hotel, a heritage building downtown. The hotel evacuated its 297 guests, and firefighters fought the blaze for 10 hours. Investigators discovered the cause was accidental—a propane torch ignited construction material, which smouldered unnoticed and eventually spread.

So, what next? With a section of the roof and 12 guest rooms destroyed, as well as extensive water damage to other parts of the hotel, the path forward was a major rebuild, renovation, and modernization, costing \$45 million.

Over the next year and a half, APEGA permit holder PCL Construction worked frantically to restore the building. And on Canada Day this summer, the 109-year-old hotel reopened.



Although the historic exterior and facade remain, the hotel has been reborn in the modern luxury category, thanks to a redesign by Alberta architect Gerry Doering.

The hotel boasts patio space and hot tubs on its roofs, which complement the contemporary feel of 133 guestrooms. But Mount Royal Hotel continues to acknowledge—and even, to some degree, live in—its past.

On the main floor, a new museum tells its story. It's an interesting one, in part because the recent renovation is not its first.

The project has been “a long process of uncovering the different iterations, the different

designs since the building was first constructed in 1908,” Global News quoted an owner representative saying. “We’ve taken different inspiration from those different developments and those different eras, and we’ve embedded them into this new experience,” continued Mark Henrickse, VP of marketing for Banff Jasper Collection by Pursuit

“Guests are going to have these really interesting throwback experiences to some of these different design elements, going back to the '30s, the '40s, the '50s and the '60s in an interesting and unique way.”

CANADIAN NATURAL RESOURCES LTD. TO BOOST HORIZON OIL SANDS OUTPUT

A ginger recovery continues in oil and gas, characterized by at least one recent commitment by an Alberta company. Canadian Natural Resources Ltd. announced, along with its second-quarter results, that it plans to spend another \$170 million this year on projects that could boost production at Horizon by 100,000 barrels

per day. The funds will advance engineering and pay for equipment for projects in 2019 and 2020.

Right now, Horizon, located near Fort McMurray, can produce 250,000 barrels per day of synthetic crude, a product that's close to West Texas intermediate in the prices it fetches.



MEDICINE HAT HOSPITAL ADDITION INCLUDES ROOFTOP HELIPORT

Seven years in the making, a 245,000-square-foot addition to Medicine Hat Regional Hospital has officially opened. The state-of-the-art Ambulatory Care Building adds 40 outpatient treatment spaces, a

NEW HEALTH BUILDING EXPANDS SERVICES

This is not just another building for Medicine Hat. Opening of the \$265-million Ambulatory Care Building represents a major boost in medical services for the city and its neighbours.

-photo courtesy Alberta Health Services

rooftop heliport, cardio-respiratory services, a renal program, and sterile processing. The project came in at a cost of \$265 million, a report in the *Medicine Hat News* says.

The project also expands day surgery and neonatal intensive care areas, and includes a redevelopment of the hospital's cancer centre.

The new building, designed by Gibbs Gage Architects and Diamond Schmitt Architects, relied on the engineering of several APEGA permit holders: RJC Engineers (structural), SNC-Lavalin Wiebe Forest (mechanical), SMP Engineering (electrical), and MPE Engineering (civil).

ALBERTA GEOMATICS EXPERTISE COMES TO THE RESCUE IN THAI CAVE ENTRAPMENT

When a flash flood trapped 12 boys and their soccer coach inside a Thai cave, specialists from 18 countries arrived to help with the rescue. A diverse team of volunteers included Navy SEALs, international caving experts, police, military personnel, border guards—and the Calgary offices of a U.S. geospatial engineering firm.

APEGA permit-holder Intermap Technologies Corporation was called on to help rescuers visualize the complete interior of the cave, which had never been mapped. Within hours of receiving a call

for help, staffers combined the company's digital elevation model with known cave patterns to determine the best access points and drilling locations. They also created maps with information on cave dimensions, locations where water could enter and exit, and the potential outcomes of a storm, helping rescuers figure out where the team was likely to have found shelter.

Then Intermap collaborated with MappointAsia and Thailand's Chiang Mai University to turn their data into 3D models that the

rescuers could use to plan the extraction.

In a *Calgary Herald* article, an executive vice-president of Intermap—who's also a University of Calgary alumnus—heaped praise on the Schulich School of Engineering. Ivan Maddox said Intermap couldn't have done what it did without expertise that originated at the school. "The University of Calgary is a world leader in geomatics engineering. It doesn't just lead the geomatics engineering industry. It defines the industry on a global scale."

CALGARY PUMPS \$1 BILLION INTO WASTEWATER TREATMENT UPGRADE

After five years of rapid growth, things have probably cooled somewhat on the population front in Calgary. But growth still poses a challenge to city infrastructure. To that end, the city continues to invest in infrastructure in a big way to keep up, including a \$1 billion expansion underway at its Bonnybrook Wastewater Treatment Plant.

Begun in 2014, the overall project will finish in 2024, the city's website says. CBC News, meanwhile, bills the upgrade of the facility in southeast Calgary "the \$1-billion Calgary megaproject you don't know about." As major projects go, explains the news outlet, upgrades of this sort don't exactly capture the public imagination.

But Bonnybrook plant is a big deal, handling all of the wastewater from the northern half of the city and even some of the communities beyond Calgary's border. It currently has the capacity to serve 946,000

people—the upgrade will get it to 1.37 million and serve the city's needs into the mid-2030s.

The initiative also includes the creation of a new, \$95-million biosolids dewatering facility (already in operation) and expansion of an existing co-generation plant. The plant captures biogas and solids to generate electricity and heat.

Flood protection upgrades should ensure the plant never again sustains the kind of damage it did in 2013. A new berm on its Bow River side will prevent overland flooding, and a new outlet a kilometre downstream will keep water from being pushed into the plant through outfall channels.

JUST TO BE CLEAR

The big build happening at Bonnybrook Wastewater Treatment Plant in Calgary includes a secondary clarifier.

-photo courtesy the City of Calgary



DRIVERLESS TECHNOLOGY MAKES ALBERTA INROADS

This fall, Albertans and visitors to the province will be among the first in the country to try out autonomous vehicle technology. A 12-passenger driverless shuttle called Ela is being piloted by Pacific Western Transportation in Calgary and Edmonton, at locations segregated from pedestrian and other traffic.

Edmonton's test section remained undetermined at deadline, but in Calgary, the shuttle will run on a service road between TELUS Spark and the Calgary Zoo.



Created by French company EasyMile, Ela has carried several hundred thousand people at 170 locations worldwide—without a single safety-threatening incident. The shuttle, which has an emergency stop button but no steering wheel, operates using lidar. (Lidar is a surveying technology that uses pulsed laser technology—the word was originally a portmanteau of light and radar, but it's since been back-defined to stand for light detection and ranging, or sometimes light imaging, detection, and ranging.)

Ela relies on a series of 3D sensors to continually compose a 3D map and monitor the surrounding environment for potential collision risks.

IN-THE-ROUND PLAYER IS PART OF THE CANNABIS INDUSTRY IN ALBERTA

Vancouver-based RavenQuest BioMed is launching a cannabis production facility in northwest Edmonton—and it's eyeing other opportunities in the province. In the 35,500-sq.-ft. Edmonton facility, the company is increasing growing space and efficiency by replacing traditional flat tables with its Orbital Garden technology.

The strategy features drum-like pieces of equipment, stacked and hollow, to produce a higher yield of crop with reduced use of electricity, water, and nutrients. The \$14-million facility, expected to be fully operational by November, will be able to rake in \$48 million annually while producing 7,000 kg of cannabis. A second stage, when its built, will double capacity.

RavenQuest is also planning a much larger version of its high-tech approach at the Fort McMurray Nation—a 250,000-sq.-ft. facility expected to produce a whopping 50,000 kg of cannabis annually. It's also signed a deal for a more modest, 24,000-sq.-ft. operation at Alexander First Nation, just northwest of Edmonton.

It's no fluke that First Nations sites are on the horizon for RavenQuest. A publicly traded company, RavenQuest says on its website that it plans to partner often with indigenous peoples.

Why Alberta? One reason, the company's CEO George Robinson notes, is that Alberta's economic situation has freed up skilled oilpatch workers with the experience RavenQuest needs to build high-end facilities.

The company also promises to be heavy on science and environmental responsibility. Mr. Robinson says: "We believe the real story here is sustainability. Canadian companies are going to be growing a lot of cannabis. With this kind of scale, it's important we conduct ourselves responsibly and care for the environment."

He continues: "RavenQuest believes strongly in the science of the plant and believes strongly in environmental stewardship. We believe our patients and clients want to see this kind of social responsibility in the products and brands they consume."

The Watch

LAST CALL LOOMS FOR OLD STRATHCONA HOTEL—AT LEAST AS WE KNOW IT

Edmonton’s Old Strathcona Hotel opened in 1891 to host new arrivals straight off the train from Calgary. Since then, a wide cross-section of humanity has slept at the hotel and imbibed at its tavern, a popular watering hole on Whyte Avenue.

Over time, the beloved Edmonton landmark has developed a reputation for affordable beer and a sketchy vibe—but this is about to change.

Developer Ivan Beljan, P.Eng., already a big presence on Whyte Avenue, is purchasing the building, which has protected heritage status from the city and province. Is he giving it a “hipster makeover?” That’s what the headline on an *Edmonton Journal* opinion piece declares.

Whatever label you give his vision, Mr. Beljan is looking at transforming 48 rooms into 34 apartments or boutique hotel rooms. The main floor of the building will host retailers and restaurants. And, if the city and province agree, a solarium will be built at the back.

MODERN ART FINDS A HOME IN CALGARY’S OLD PLANETARIUM

Back in 1967, Calgary’s Centennial Planetarium was constructed to mark Canada’s centennial. Built of raw concrete and featuring a dome-like design, the award-winning building housed the Calgary Science Centre for 27 years.

But several years ago, the science centre relocated from the old location, west of downtown, and became TELUS Spark, near the Calgary Zoo.

Now the iconic building, which sits on a 3.1-acre property, will become home to the city’s first modern art gallery, once \$24.5 million in upgrades from the city are finished. In 2019, the space will be taken over by Contemporary Calgary, which has signed a 25-year lease with the city, including the possibility of a 10-year extension.

AS IT STANDS
A landmark in Old Strathcona continues to occupy a busy and colourful intersection in Edmonton.





CARRY ON CAMSELL

Hurdles upon hurdles have challenged redevelopers of the decommissioned Charles Camsell Hospital. Finally, the condominium project has some momentum.

GHOST HUNTERS, VANDALS, MOVIE MAKERS TAKE NOTE— CAMSELL HOSPITAL IS BEING TRANSFORMED

The Government of Alberta decommissioned Edmonton's Charles Camsell Hospital 22 years ago, and then, in 2004, it was purchased by architect Gene Dub. He envisioned transforming the building in Edmonton's central northwest into condominiums.

Unfortunately, not a lot that was noticeable happened on the site for many years after the purchase, unless vandalism or the paranormal are your thing. A short documentary did feature the site, harkening back to the hospital's days as a sanitorium that treated tuberculosis patients, most of them Indigenous peoples. The documentary highlights an unsavoury part of Canada's past: segregated health care.

On the lighter side, who can forget *Intern Academy*, a Canadian movie released in 2004 and filmed at Camsell Hospital? Answer: almost everyone.

Mr. Dub's project has been stymied by some significant challenges, including two fires caused by workers and the need to remove asbestos. But the redevelopment project is finally making real progress. This summer, T.C. Biggs Construction began framing 161 condominium units inside the building, which will range in size from 800 to 1,200 sq. ft. and have higher-than-normal ceilings.

On the first few floors, those ceilings will be about 12 feet high, and they'll really stretch up there on the seventh floor to 16 feet.

The eighth storey will feature three-level penthouse suites with sweeping views of the city and individual patios.

To preserve some of the building's history, Mr. Dub plans to leave steel support beams and ceilings exposed, and to restore original terrazzo floors in the lobby and staircases. In addition to the apartment-style condos, the complex will feature 27 three-bedroom townhouses atop an underground parkade, just north of the hospital. Other highlights of the project include an adjoining park and a four-storey glass atrium. The project is slated for completion by the end of 2019.

Intern Academy II? Looks like you'll need a new location.

INSPIRED BY THE PEG, U OF A STUDENT FINDS A GROUP THAT BUILDS A BRIDGE IN BOLIVIA

This is a story about the community-building power of the right bridge in the right place. And it's also a story about the inspirational power of a PEG feature—in the right brain at the right time.

Our cover story for the winter 2014 edition, *The Other Side of the River*, was about a Denver-based organization called Bridges to Prosperity (B2P) and a project in Panama. The B2P footbridge between La Conga and La Florida, built in part by an Alberta engineer-in-training, “carries a heavy load—the hopes and dreams of

local residents, who now have year-round access to education, job opportunities, and medical services,” we wrote at the time.

To Mabel Smith, who was 18, the story's words were particularly powerful. “I was so excited about B2P's application of civil engineering to a humanitarian cause that I went on to found the University of Alberta student group associated with B2P,” says Ms. Smith, now a university student member of APEGA. “We have now been able to complete our first U of A bridge-building project, in Chavarria, Bolivia.”

In the rural community, a river separates farmland from the village proper. That's not a problem for much of the year, when the river is little more than a trickle and

the village's 450 residents can easily cross it. In the rainy season, however, it can become impassable in mere minutes.

This made it impossible for children to reach their school. Farmers couldn't get their crops to markets. Reaching medical care or other services became far more complicated.

But now, thanks to the U of A group affiliated with B2P, villagers use their new footbridge to go back and forth whenever they like. Eight U of A students travelled to Chavarria during the summer, and in just 26 days, they and a team of 10 community members completed the 39-metre, cable suspension bridge, following B2P plans.

The bridge features a one-metre-wide deck, fenced in by chainlink siding in red, yellow, and green—the colours of the Bolivian flag. It's anchored on both sides with blocks of concrete and stone.

The village raised 15 per cent of the costs for the build. The U of A group, today known as U of A Engineers in Action, raised \$20,000, through crowdfunding, corporate sponsorship, U of A itself, and other fundraisers. B2P covered the rest.

“One of the highlights was taking a half day off work and playing soccer with community members,” recalls Ms. Smith. “Another highlight was the inauguration day, after the bridge was complete. An overwhelming number of community members came out to celebrate the completion of the bridge. There were speeches, confetti, dancing, and a special alcohol drink called chicha.”



DANCING ABOUT THE BRIDGE

Locals and the builders of their new bridge celebrate its opening, in the tiny community of Chavarria, Bolivia.

-photo courtesy Mabel Smith

TRANS MOUNTAIN CLEARS MORE HURDLES—AND ANOTHER HURDLE ARISES

The PEG publishes quarterly, which means we're not trying to be as current as your favourite online feed. Sections like *The Watch* have a feature feel to them. Rather than jump at every headline, we present things in a leisurely, contextual stroll through the news.

But Trans Mountain. You really do test this approach, don't you?

If you'll excuse the mixed metaphor, keeping up with this story is a steeplechase in a hamster wheel. What follows, then, was written before the most recent Supreme Court decision to halt construction. For that reason, we'll put it in italics.

The federal government hasn't secured a buyer yet for the Trans Mountain pipeline, but the expansion project continues to progress in fits and starts. This summer, the National Energy Board gave its approval for a start for construction on four sections between the Edmonton terminal and the Darfield pump station near Kamloops.



Shortly after this announcement, a U.S. national security review greenlit the Canadian government's purchase of the pipeline project from Kinder Morgan. This is a crucial step in a sale to the Canadian government, since the deal includes the acquisition of the Puget Sound pipeline, a short spur line that transports crude from Abbotsford to refineries in Washington.

Well, those were the days.

LINKS

ALBERTA

[High River Adds To Flood Prevention](#)

[Mount Royal Hotel Reborn](#)

[CNRL Announces Horizon Commitment](#)

[Medicine Hat Opens Hospital Addition](#)

[Alberta Geomatics Expertise to the Rescue](#)

[A Wastewater Megaproject in Calgary](#)

[Driverless Testing Arrives in Alberta](#)

[Cannabis Player Uses New Growing Technology](#)

[Historic Hotel is Getting a Makeover](#)

[Planetarium Becomes Art Gallery](#)

[Old Hospital Plans Make Progress](#)

[Students Build Bolivian Bridge](#)

CANADA

[Court Quashes Trans Mountain Approval](#)

WORLD

[Sparkles From the Cosmos](#)

[Microbreweries of a Sort Monitor Radiation](#)

The Watch



FROM THE BIG BANG TO YOUR HOUSE: SPARKLY LITTLE COSMIC GIFTS MAY BE LANDING ON YOUR ROOF RIGHT NOW

Not all meteorites are the kind that keep Superman or Bruce Willis up at night. Some are tiny and sparkly and harmless, it turns out. That we know this fact at all has an unusual origin story.

As reported by the CBC Radio show *Quirks & Quarks*, eight years ago a Norwegian jazz musician noticed a shiny speck of metallic dust land on the table in front of him. Where'd that come from? Jon Larsen wondered. Is it,

you know—extraterrestrial?

Short answer: yes.

A recent study authored by said musician and a London geologist found that micrometeorites (a.k.a. cosmic dust) are frequently finding their way to Earth. After contacting many scientists to investigate, Mr. Larsen finally got a bite from Dr. Matthew Genge at Imperial College London. Together, they were able to fill in the blanks about Mr. Larsen's sparkly visitors.

PIN A 'MICROBREWERY' TO YOUR CHEST TO MONITOR RADIATION?

The humble microorganism behind beer and bread could one day save lives. At Purdue University, reports *ScienceDaily*, researchers have engineered yeast "microbreweries" inside disposable badges to measure radiation exposure in health-care workers.

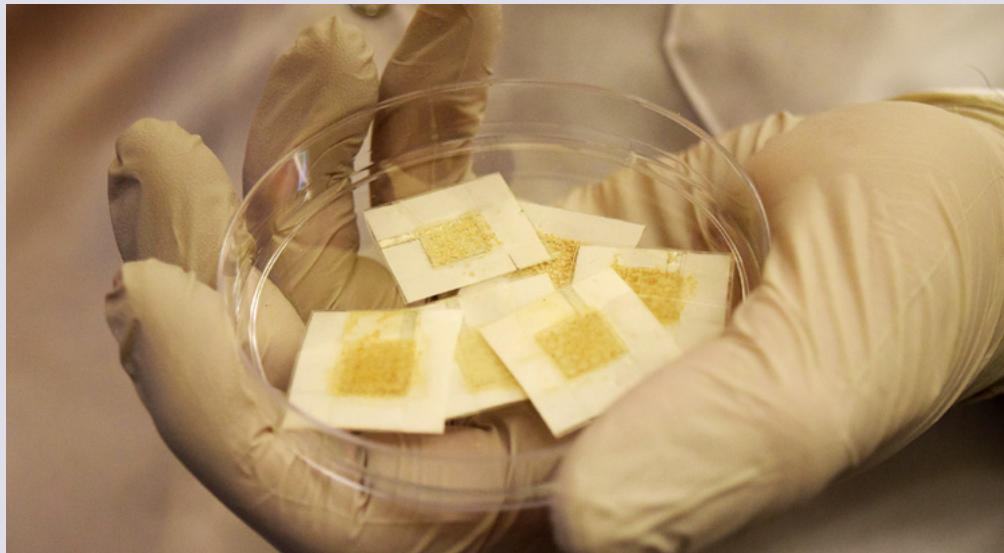
Worn on the body like traditional dosimeters—the current measuring technology for radiation exposure—these yeast-based badges are made of plain old freezer paper, aluminum, and tape. A single drop of water on the badge activates yeast cells inside, which gobble up glucose and release carbon dioxide. It's the same fermentation process involved in making bread and beer.

The carbon dioxide bubbling at the surface increases the electrical conductivity of the yeast, which is measured by connecting

the badge to an electronic readout system. Data are interpreted to reveal radiation levels.

Unlike dosimeters, which must be worn over the course of

one or two months and then sent to the manufacturer for analysis, the yeast badges give immediate readings. And that's at a fraction of the cost, too.



YEAST TO THE RESCUE

Badges with "microbreweries" show promise as generators of immediate radiation readings, say researchers.

-photo courtesy Purdue University

EDMONTON BRANCH CALENDAR

LUNCHEONS

TUESDAY, OCTOBER 2

Yellowhead Trail Freeway Conversion

Mike Bindas, P.Eng., Supervisor, Delivery, Yellowhead Trail Portfolio,
City of Edmonton

Luncheons held at: APEGA Edmonton Office
Lindberg Conference Centre
10060 Jasper Ave. NW

Schedule: 11:30 a.m. Registration
12 p.m. Lunch

Cost: Members—\$35
Non-Members—\$40
Students—\$20

To register: apega.ca

SPONSORS

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CALGARY BRANCH CALENDAR

LUNCHEONS

THURSDAY, SEPTEMBER 20

Changing Climate in Calgary—Risk Multiplier

Dick Ebersohn, Climate Change and Environment Manager, City of Calgary

THURSDAY, OCTOBER 25

Blockchain 101

Elena Dumitrascu, Co-Founder & Subject Matter Expert, Blockchain,
TerraHub

THURSDAY, NOVEMBER 15

Refining Bitumen in Alberta: North West Redwater Sturgeon Refinery, A Case Study

Brian Livingston, School of Public Policy, University of Calgary

Luncheons held at: Fairmont Palliser Hotel, 133 Ninth Ave. SW

Schedule: 11:15 a.m. Registration 11:45 a.m. Lunch

Cost: Members—\$50
Non-members—\$60
Students—\$25
APEGA Student Advantage Program—\$15

To register: apega.ca

SPONSORS



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The Value of Professional Services 2018



For good reason, the [Value of Professional Services](#) is among APEGA's most sought-after publications. A compilation and analysis of data collected during our annual salary survey, it offers APEGA members and permit holders unbiased salary and benefits comparisons across a wide range of industries in Alberta.

Welcome to our summary version of this invaluable resource. APEGA encourages you to use it, along with any other available information, to ensure fair compensation.

Early in April we contacted permit holders to encourage participation. We engaged the services of Aon to administer and conduct the salary and benefits survey, and also to compile the resulting data for publication.

The more employers participate and the more employment positions are represented, the better the data.

We are therefore pleased with the level of permit holder participation this year, which is up five per cent from 2017. Individual data points have increased, too.

We know from experience how popular and useful the *Value of Professional Services* is, and we appreciate the effort permit holders make each spring to complete the survey. Without your help, this service would not be possible.

Please feel free to contact APEGA with your comments:

Mohamed El Daly
 Director of Outreach & Product Services
 1-800-661-7020
salariesurvey@apega.ca.

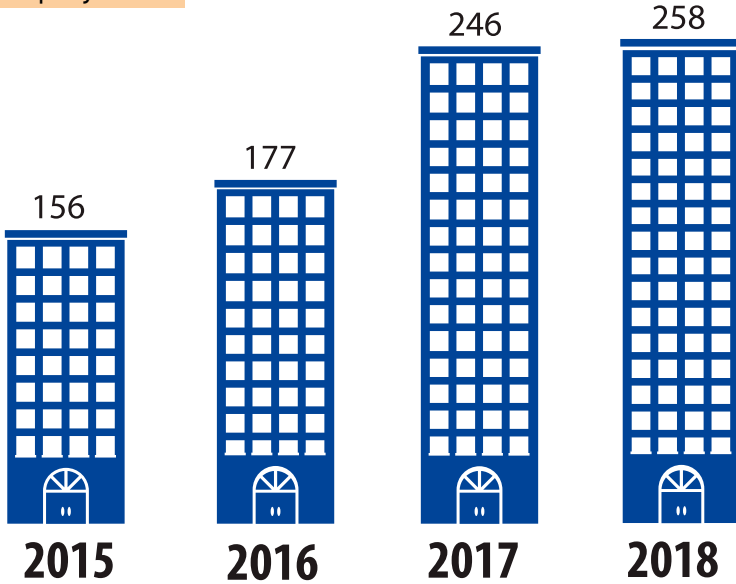
INDUSTRY CATEGORIES

This report covers nine industry categories:

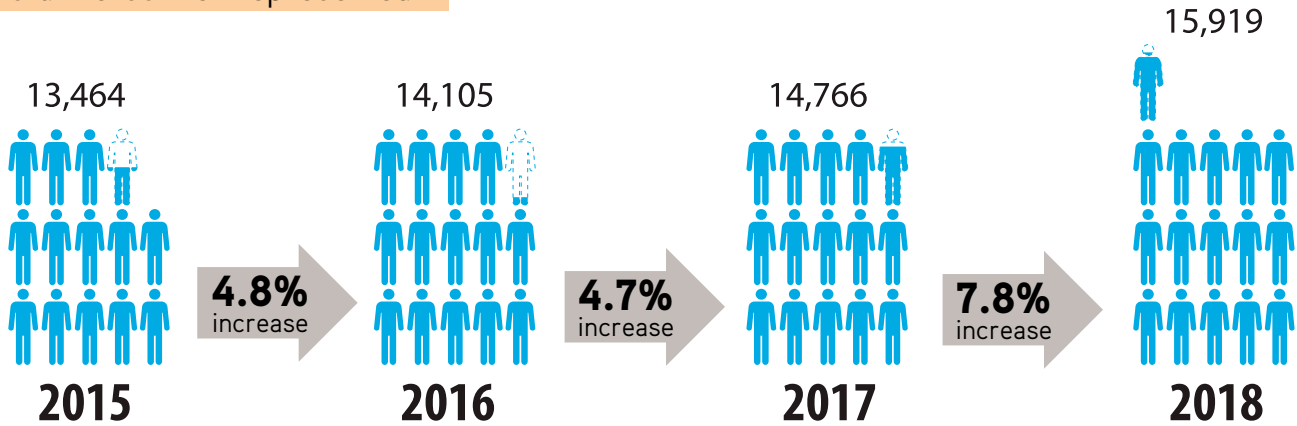
- Engineering and/or Geoscience Consulting Services
- Engineering, Procurement, and Construction
- Resource Exploitation (except oil and gas)
- Resource Exploitation (oil and gas only)
- Manufacturing (durables)
- Manufacturing (non-durables)
- Not-For-Profit Service, Control, and Utilities
- For-Profit Service, Control, and Utilities
- Information and Other Advanced Technologies

Survey Participants

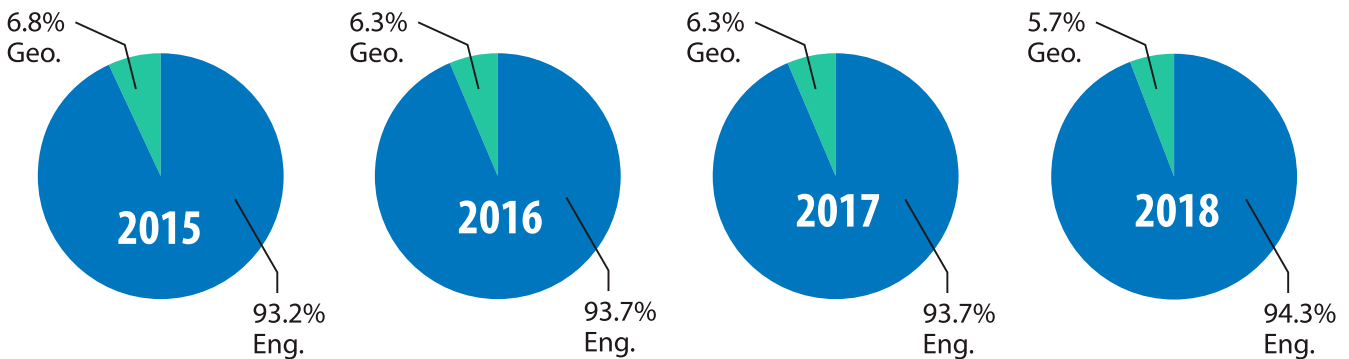
Employers



Total Personnel Represented



Engineering & Geoscience Personnel Represented, Percentage of Total



This flowchart offers an overview of responsibility levels. To determine your responsibility level more accurately, please see the [responsibility level tool](#) posted on [apega.ca](#).

HOW TO USE RESULTS

Step 1: Determine your responsibility level (A- to F+)

Step 2: Determine 2018 cash compensation salary results based on your responsibility level

Step 3: Review predicted salary increases reported by permit holders

Step 4: Review prerequisites or additional cash compensation and benefit plans (*full report only*)

NOTES ABOUT SURVEY METHODS

APEGA engaged Aon to administer and conduct the *2018 Value of Professional Services* salary survey.

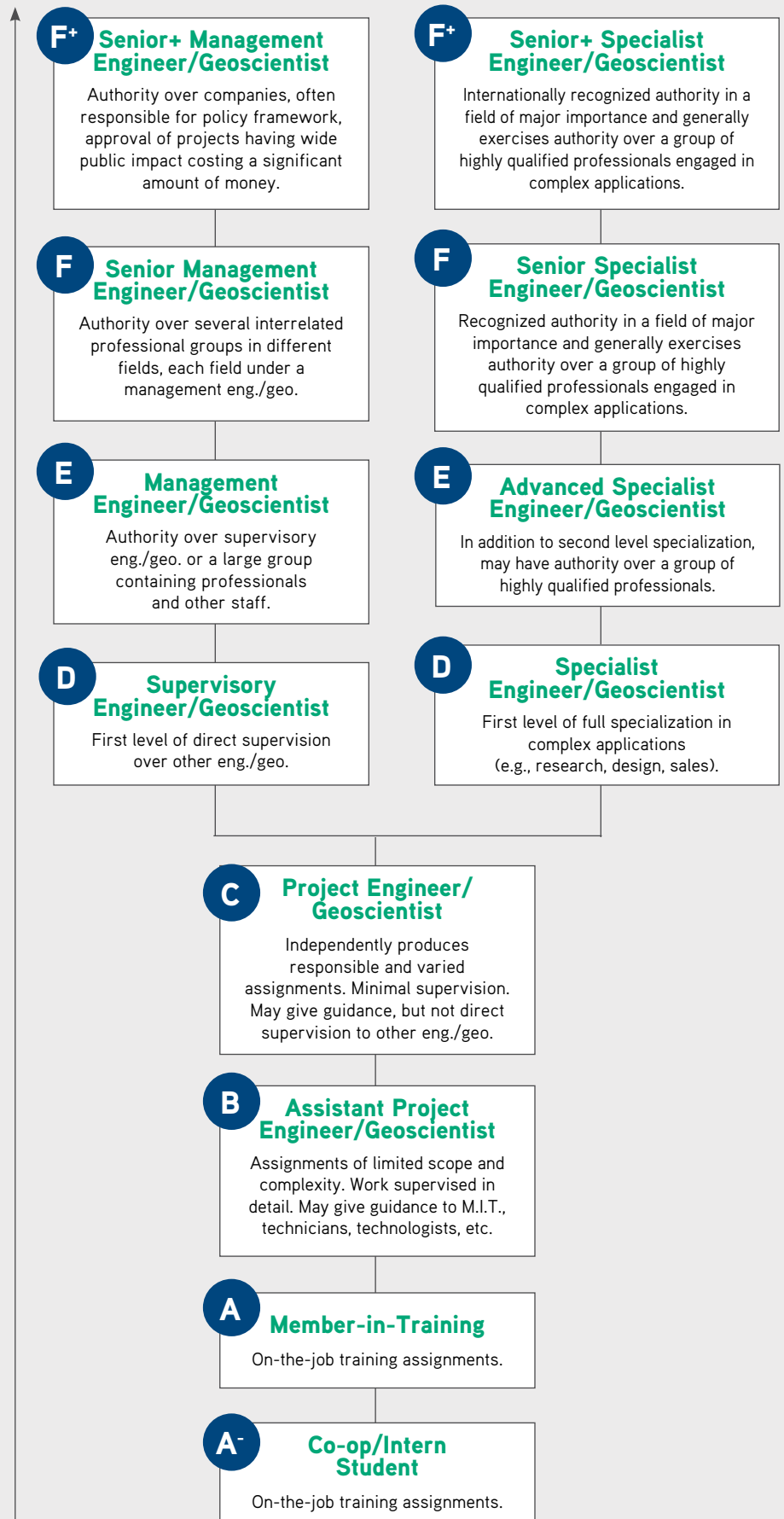
Invitations to participate in the survey were distributed to APEGA permit holders in April. Permit holders that participated in 2017 received a 2018 questionnaire with some fields prepopulated, simplifying the process.

Results were gathered and compiled by Aon in June and July.

A survey was completed by each participating permit holder's human resources or other applicable department.

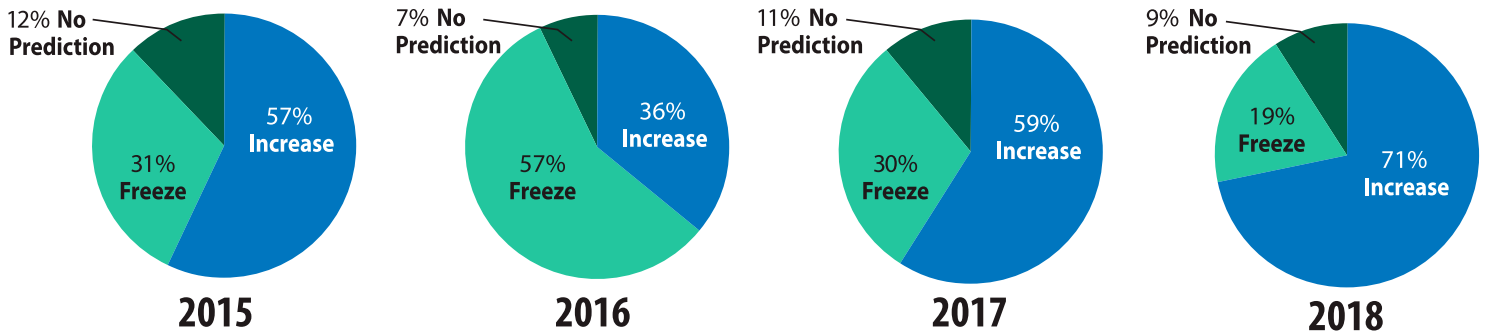
All data sources are anonymous.

JOB CLASSIFICATION FLOWCHART BY LEVEL OF RESPONSIBILITY



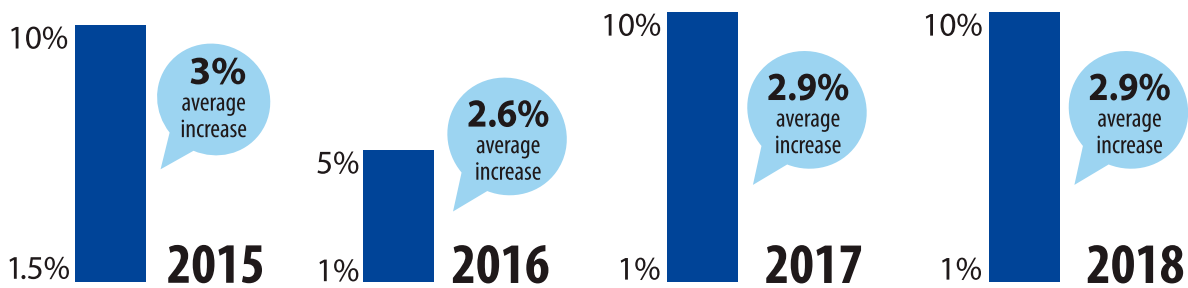
Predictions

Salary Predictions for Following Year*

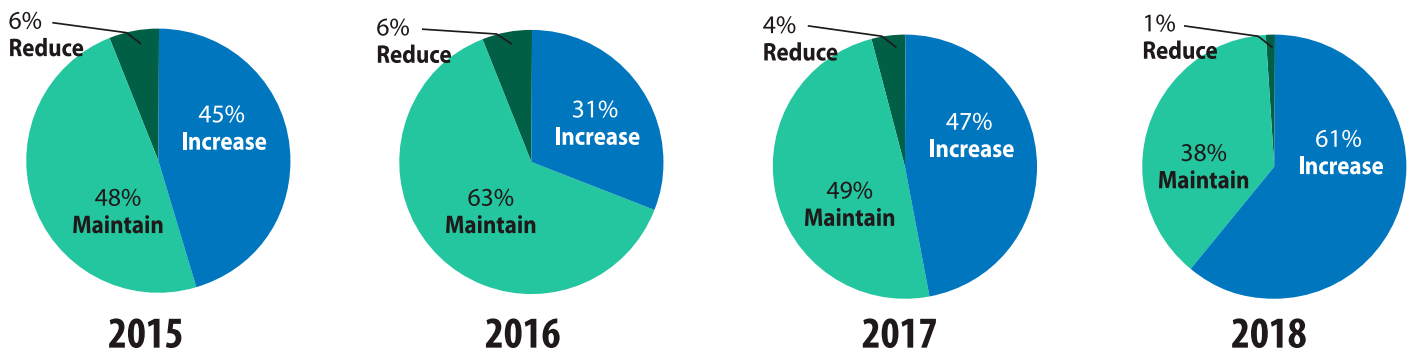


Due to rounding, totals do not necessarily equal 100%.

Salary Increase Amounts



Staffing Level Predictions for Next 12 Months



Due to rounding, totals do not necessarily equal 100%.

*Respondents as Percentage of Employer Participants

GENDER PROGRESS

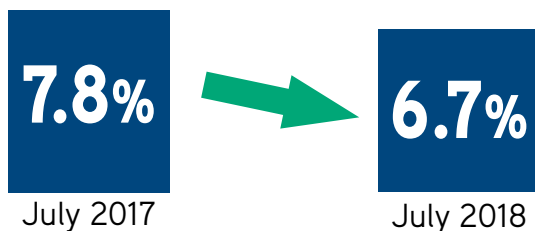
Females in geoscience represent more than 33 per cent of the total geoscience sample. Results show that salaries for female geoscientists are nearly equal to those of their male counterparts (99 per cent).

Engineering base salary results show a difference of 2.4 per cent between male and female average base salaries in 2018.

ALBERTA RECOVERY BEGINS

After the recent provincial recession, the economy has improved and stabilized in Alberta. Jobs are up, the deficit is down, and Alberta's economy is growing faster than anywhere in Canada, says the Province of Alberta's 2018 Fiscal Plan. Recovery is expected to remain moderate. The outlook presents several factors that continue to support economic growth in the province, such as continued capital spending on infrastructure by the public sector.

Alberta's seasonally adjusted **unemployment rate** is down from last year.



DID YOUR COMPANY PARTICIPATE?

We encourage all Permit Holders to participate in the salary survey. It's free, and the more Permit Holders surveyed, the more robust and representative the results.

Please contact us at salariesurvey@apega.ca to ensure that we send your company the 2019 survey participation package next April.

In Calculating Years of Experience Since Graduation, it is assumed that individuals enter the workforce immediately upon graduation from achieving their last degree. This may not necessarily be the case for all individuals, but it is considered the norm from a surveying perspective.

Typically, progression to the next responsibility level is also dependent on an individual's years of experience in the workforce. As more in-depth knowledge and specializations are gained over time, an individual's overall level of contribution and responsibility within a company progresses as well.

The highest average base salary is not necessarily solely attributed to the individuals with the most years of experience. Generally, it is more directly related to the individual's level of expertise and specialization, performance, and overall contribution within a company.

Increases are represented in a number of reporting levels, but they were minor. Generally speaking, salaries remained stable in 2018.

See graphs on following pages.

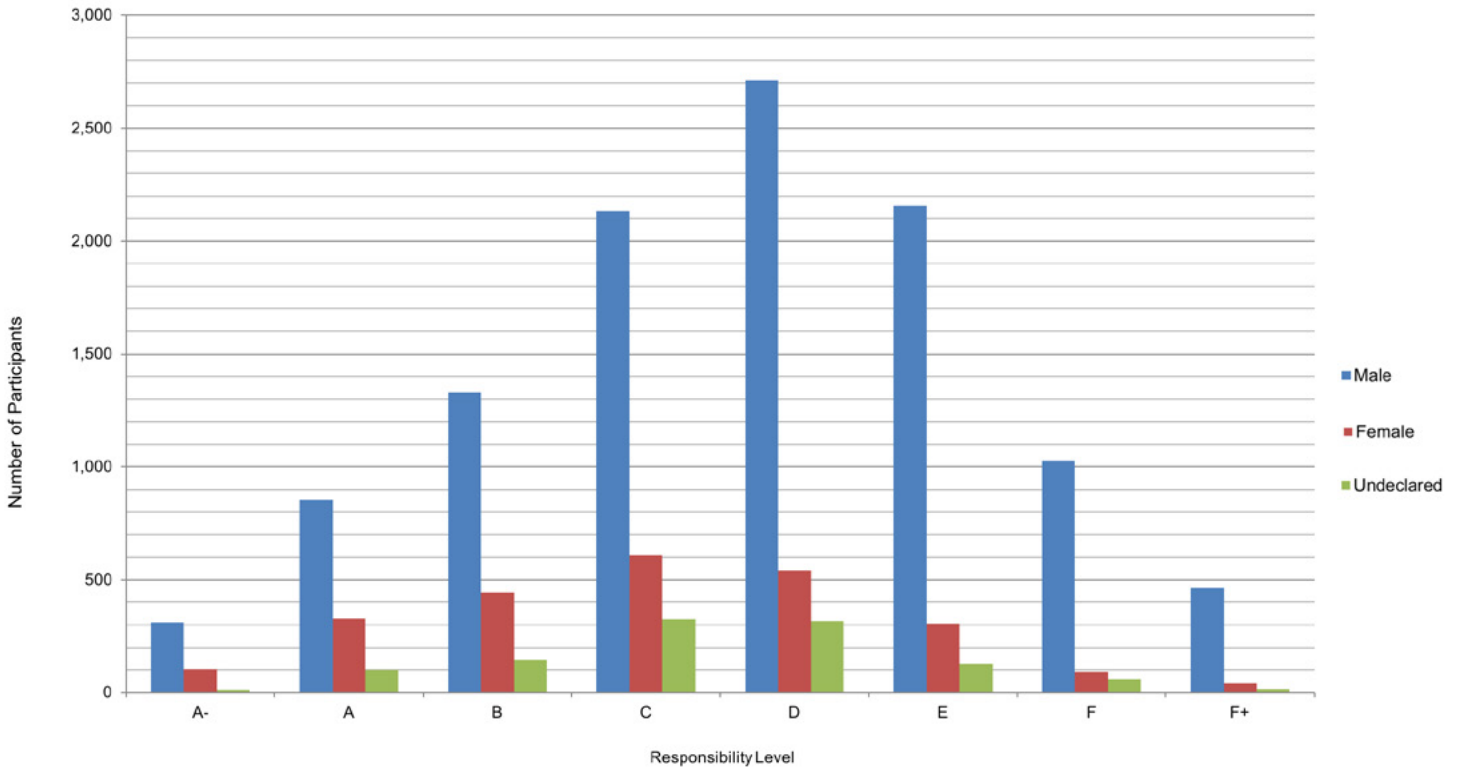
WANT MORE?

This is a summary version only of the *Value of Professional Services*. Please obtain your own full version for more detailed standard survey results, plus information on:

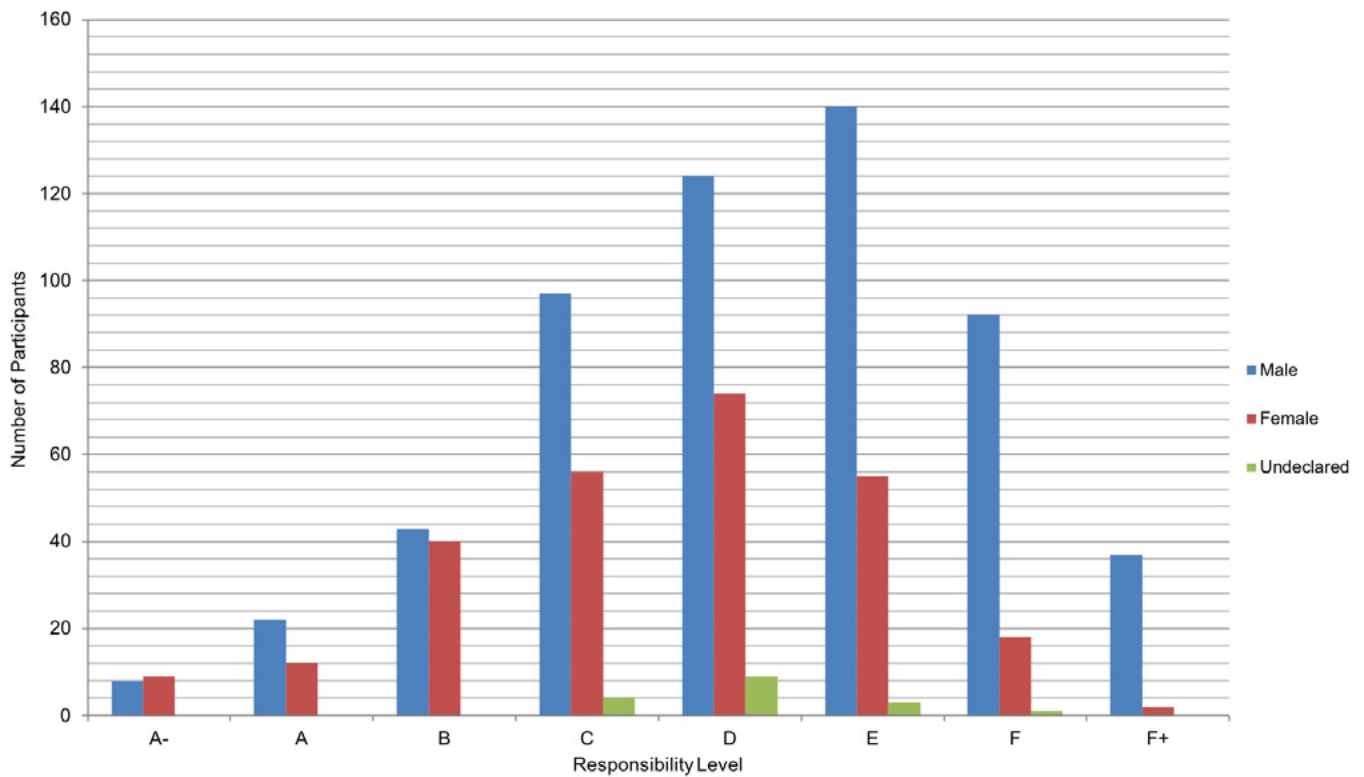
- Benefits and Additional Cash Compensation plans
- Vacation Entitlement
- Personal Sick Days
- Additional Paid and Unpaid Days
- Flexible Work Arrangements
- Overtime Policies
- Turnover
- Contract Employee Pay Rates
- Gender
- Location
- Engineering Disciplines
- Years of Experience
- APEGA License
- Company Size
- Co-op Student Salaries

The full version of the [*Value of Professional Services*](#) can be preordered at apega.ca.

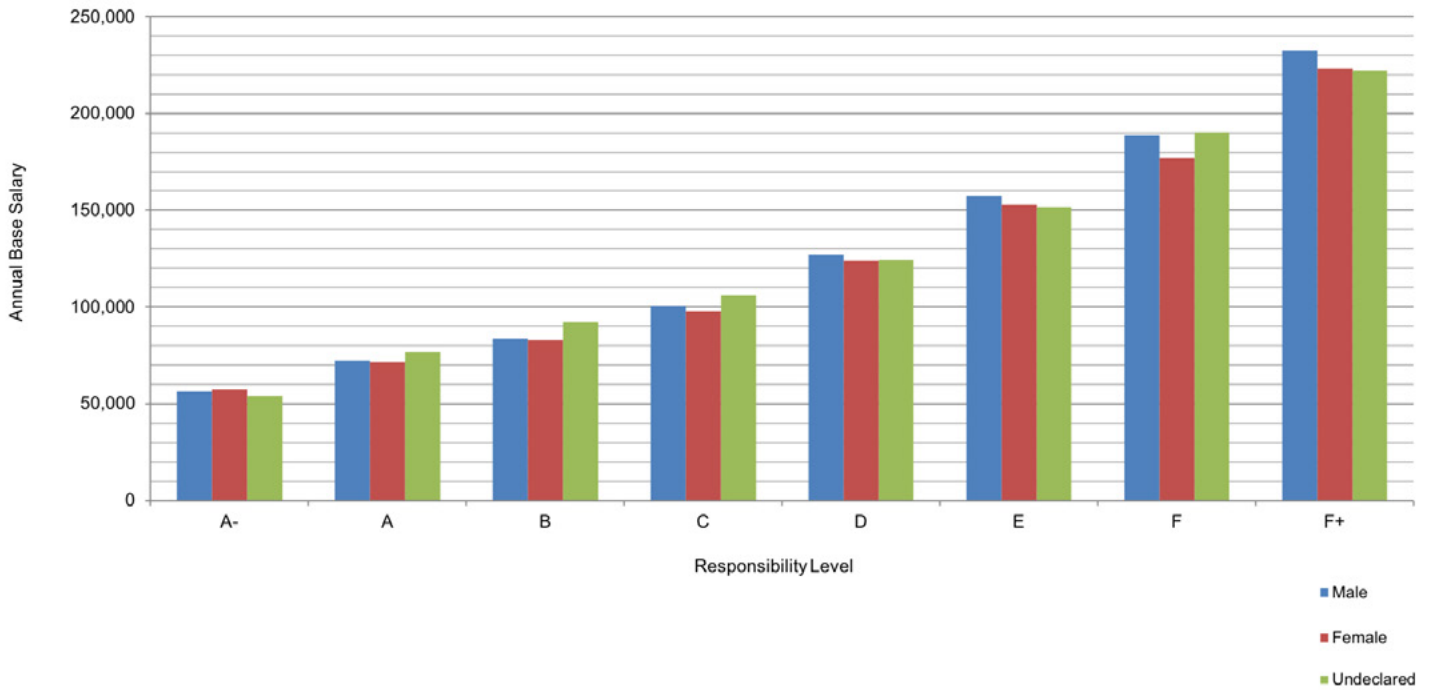
**Engineering
Gender by Responsibility Level**



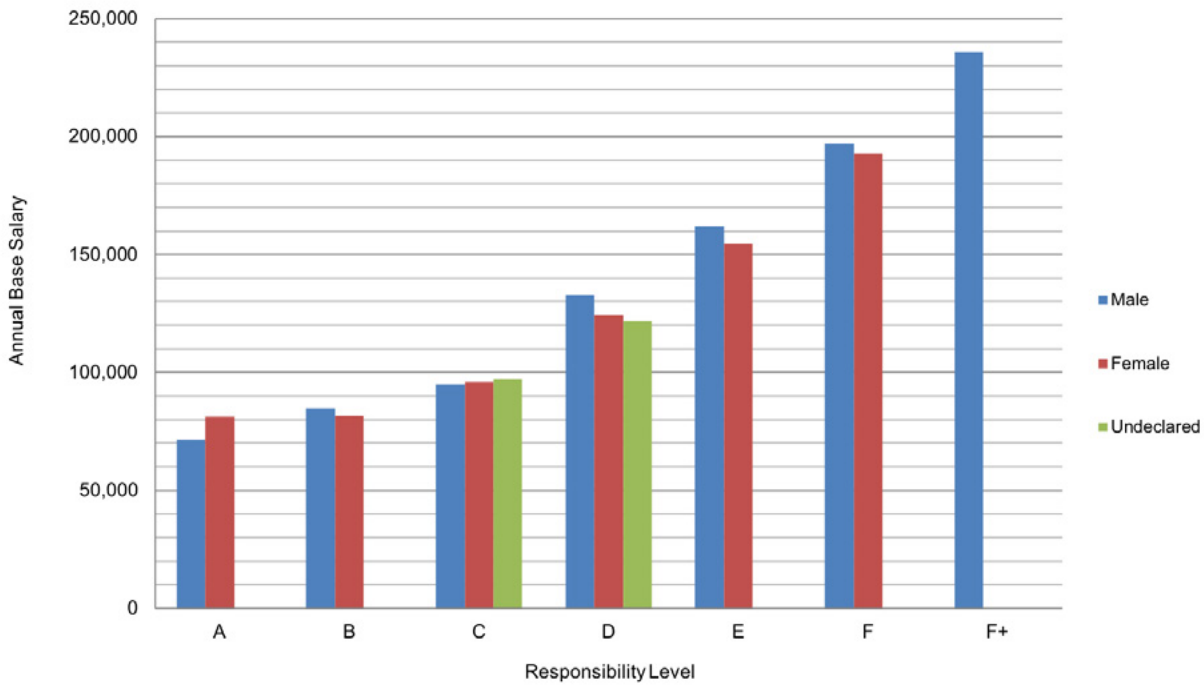
**Geoscience
Gender by Responsibility Level**



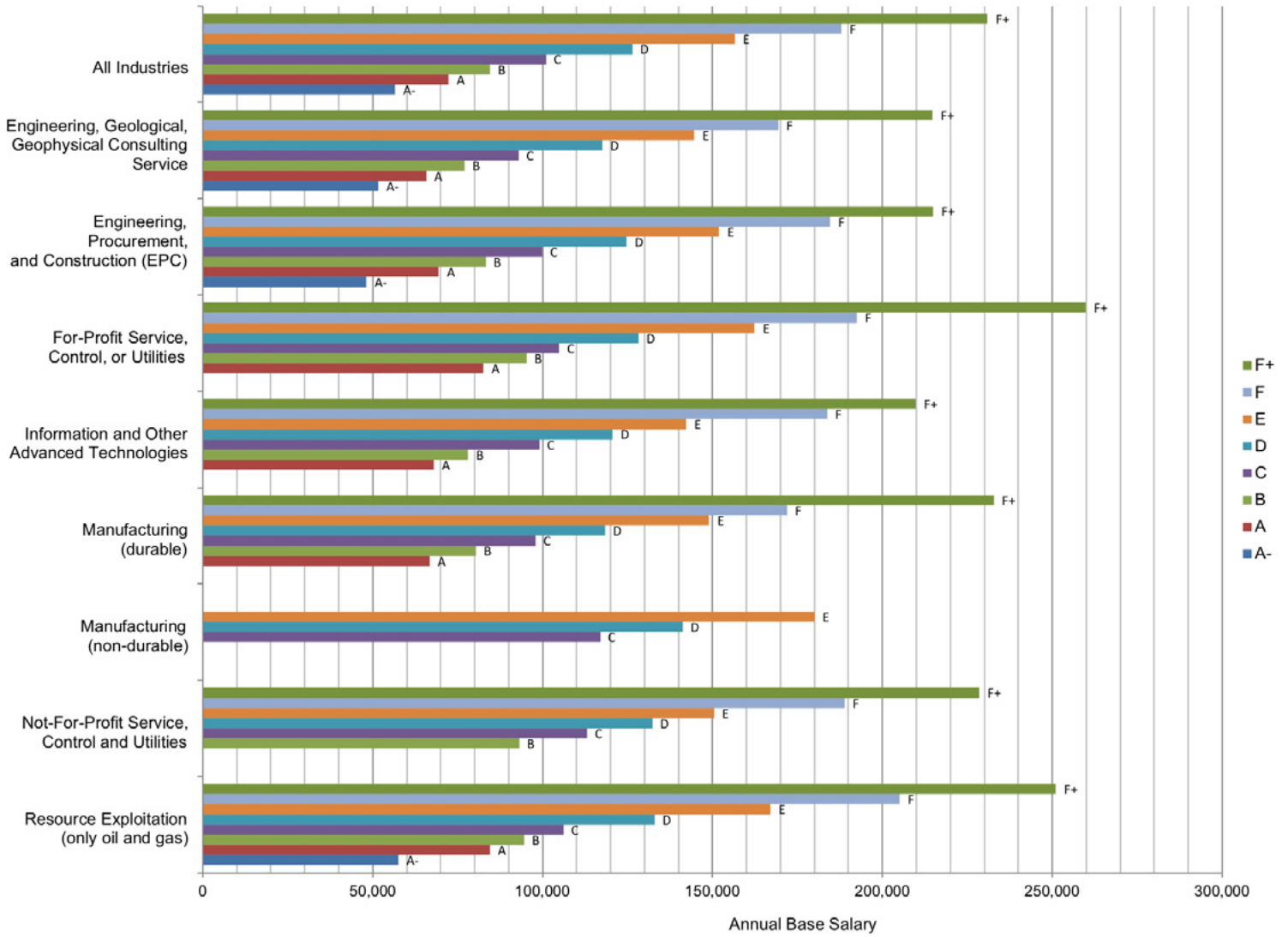
Engineering Annual Base Salary by Gender and Responsibility Level



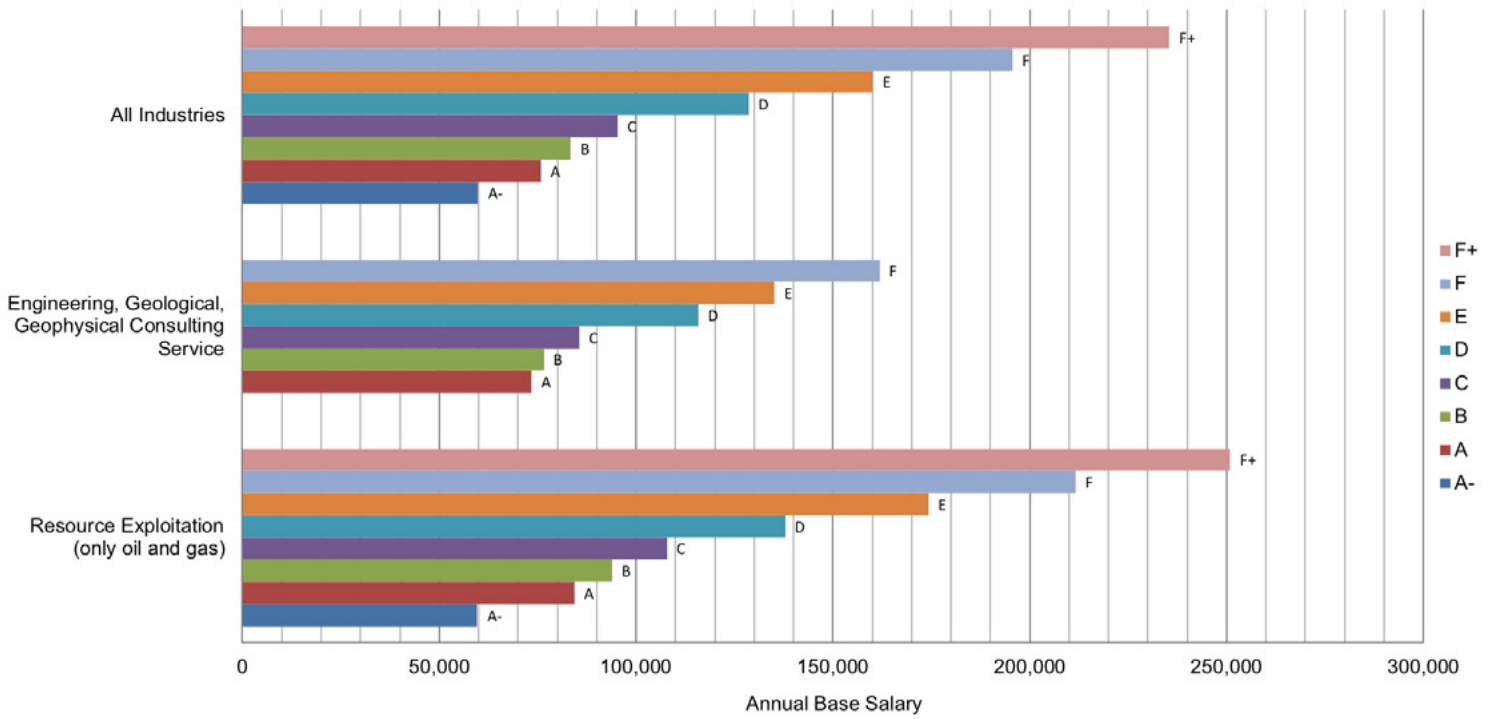
Geoscience Annual Base Salary by Gender and Responsibility Level



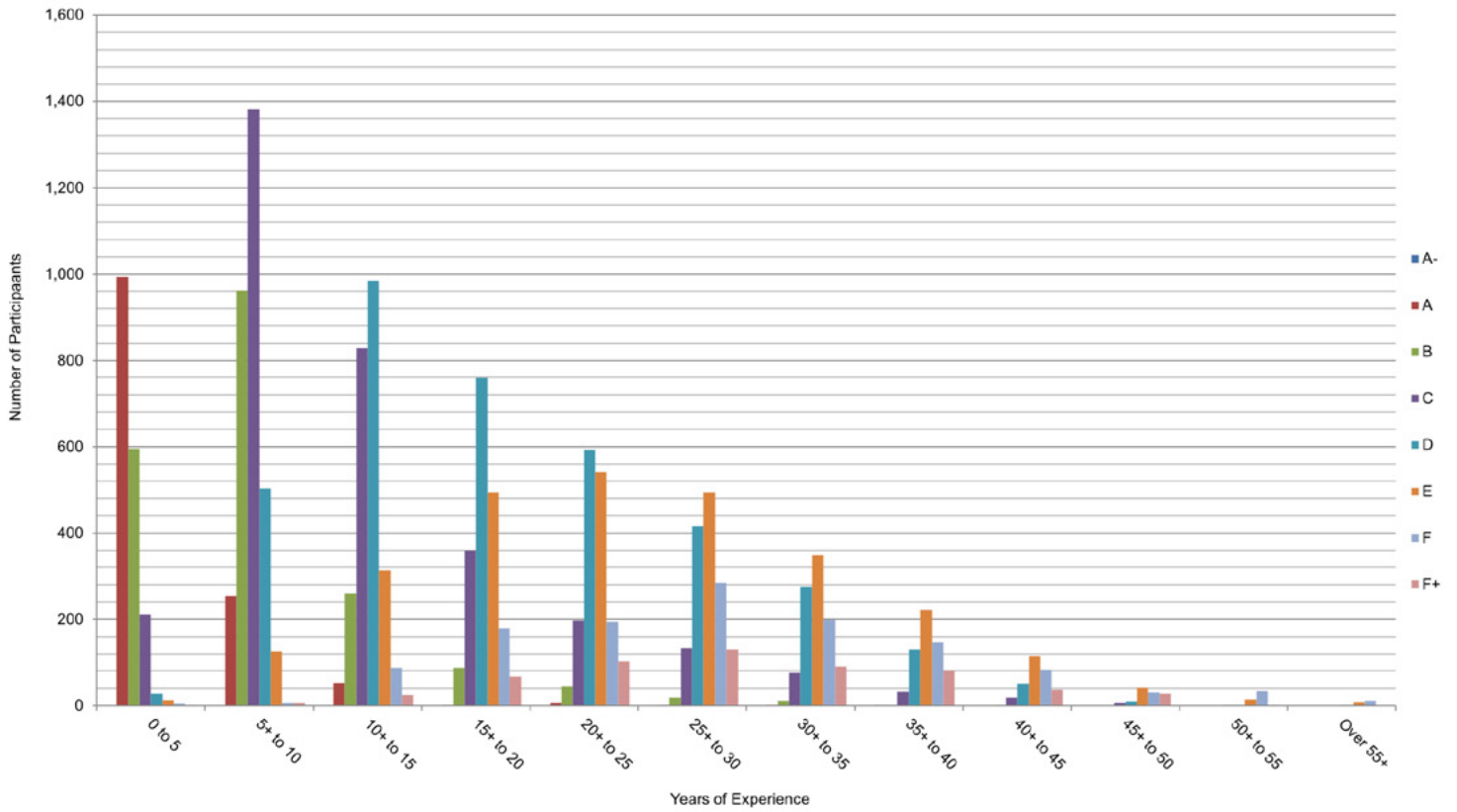
Engineering Annual Base Salary – Comparison Across Industry



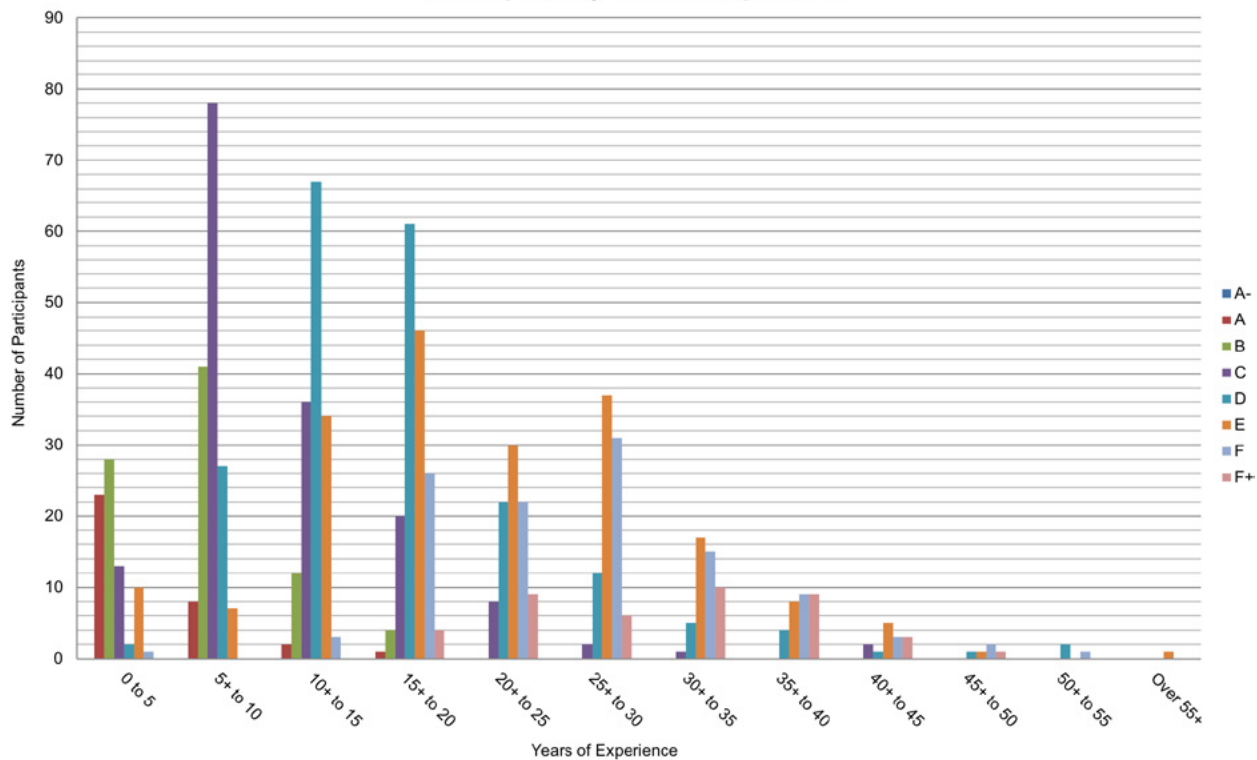
Geoscience Annual Base Salary – Comparison Across Industry



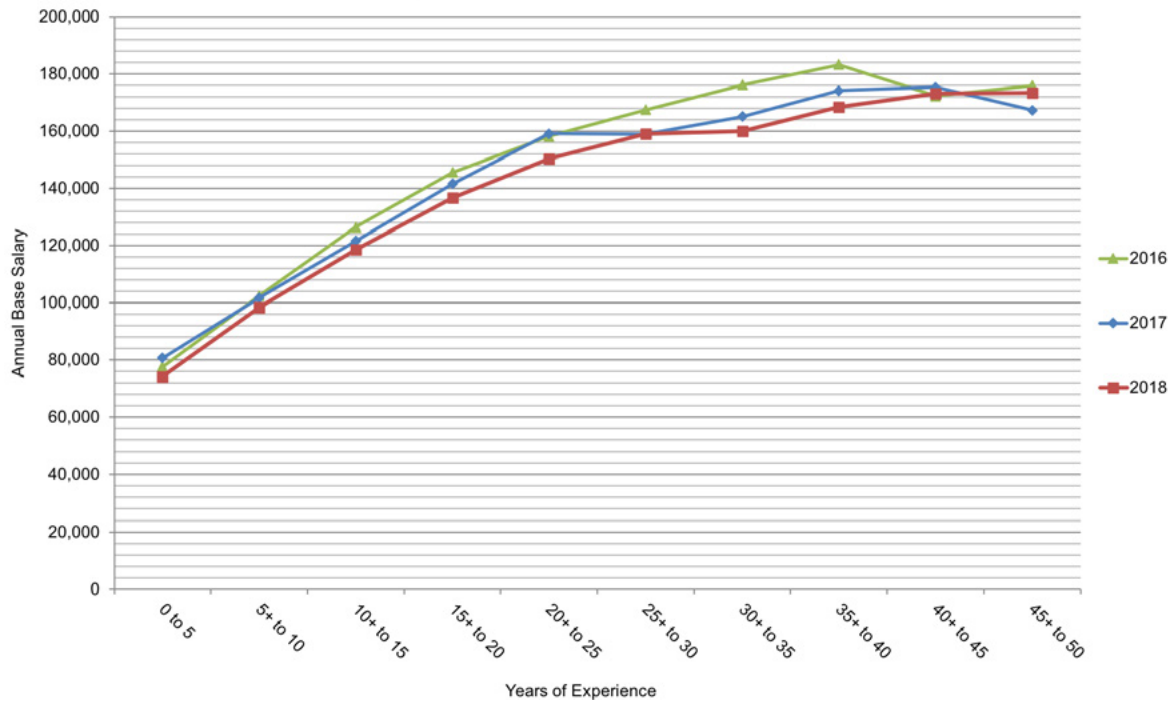
**Engineering
Participants by Years of Experience**



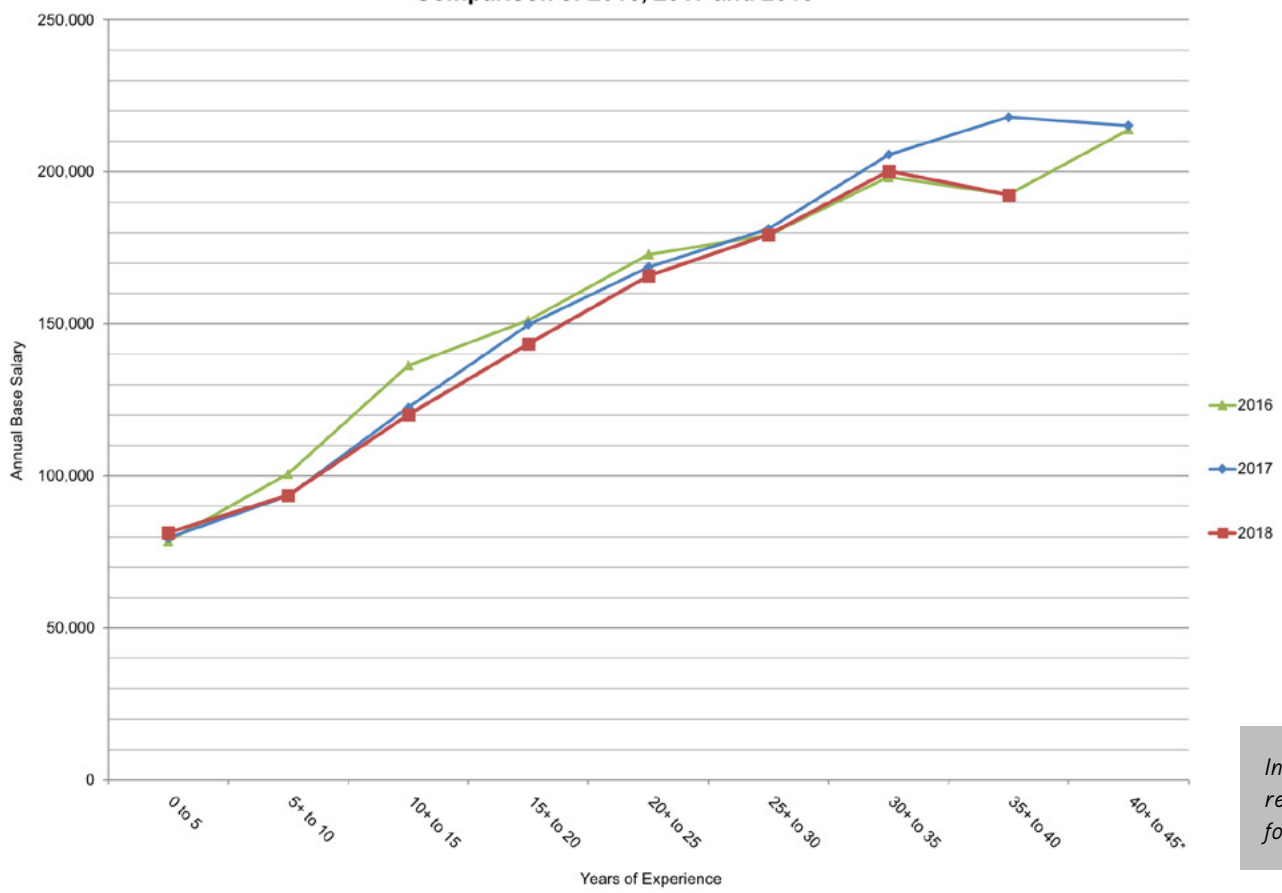
**Geoscience
Participants by Years of Experience**



Engineering
Annual Base Salary by Years of Experience
Comparison of 2016, 2017 and 2018

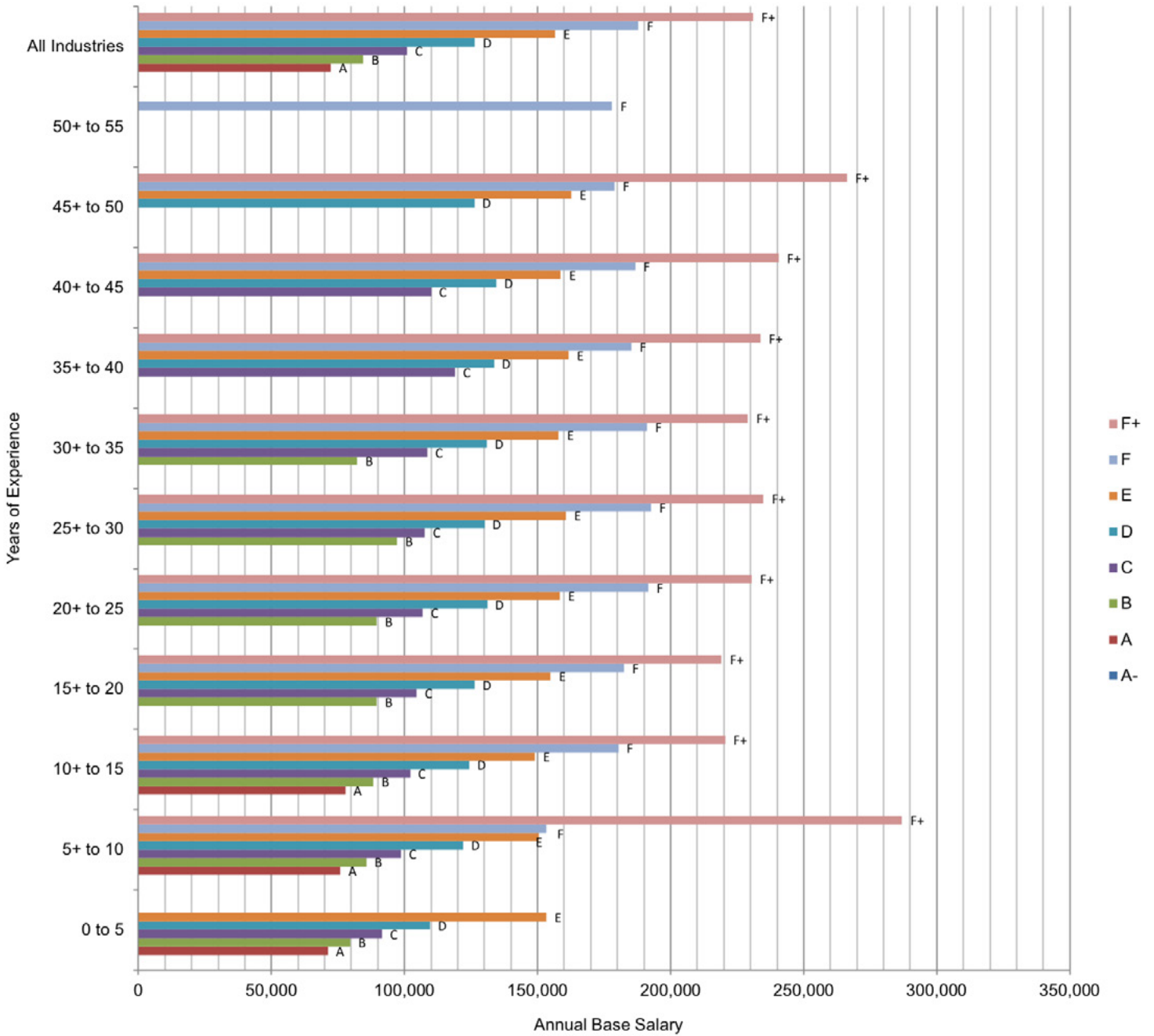


Geoscience
Annual Base Salary by Years of Experience
Comparison of 2016, 2017 and 2018

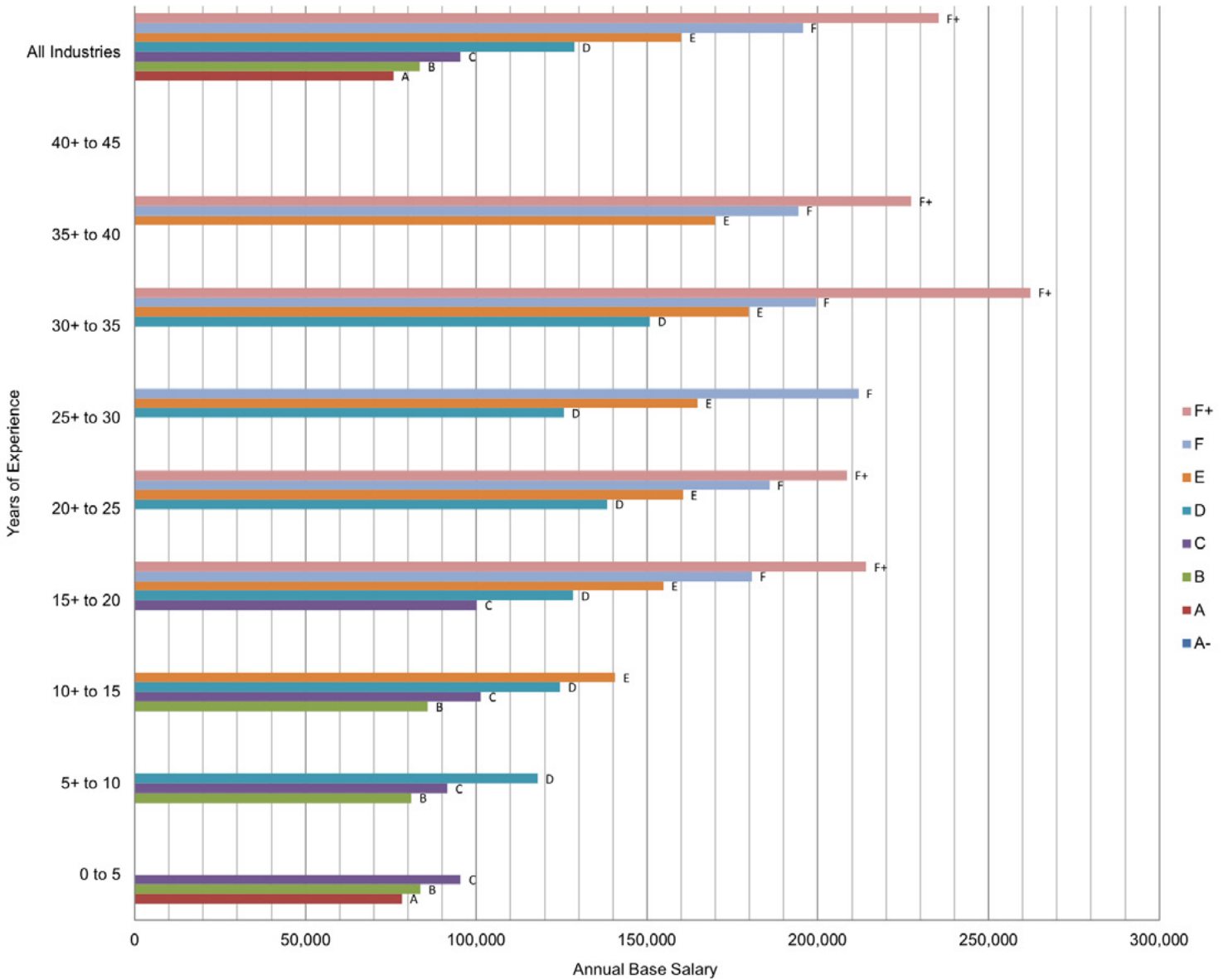


Insufficient data to report for 40+ to 45 for 2018

Engineering Annual Base Salary by Years of Experience

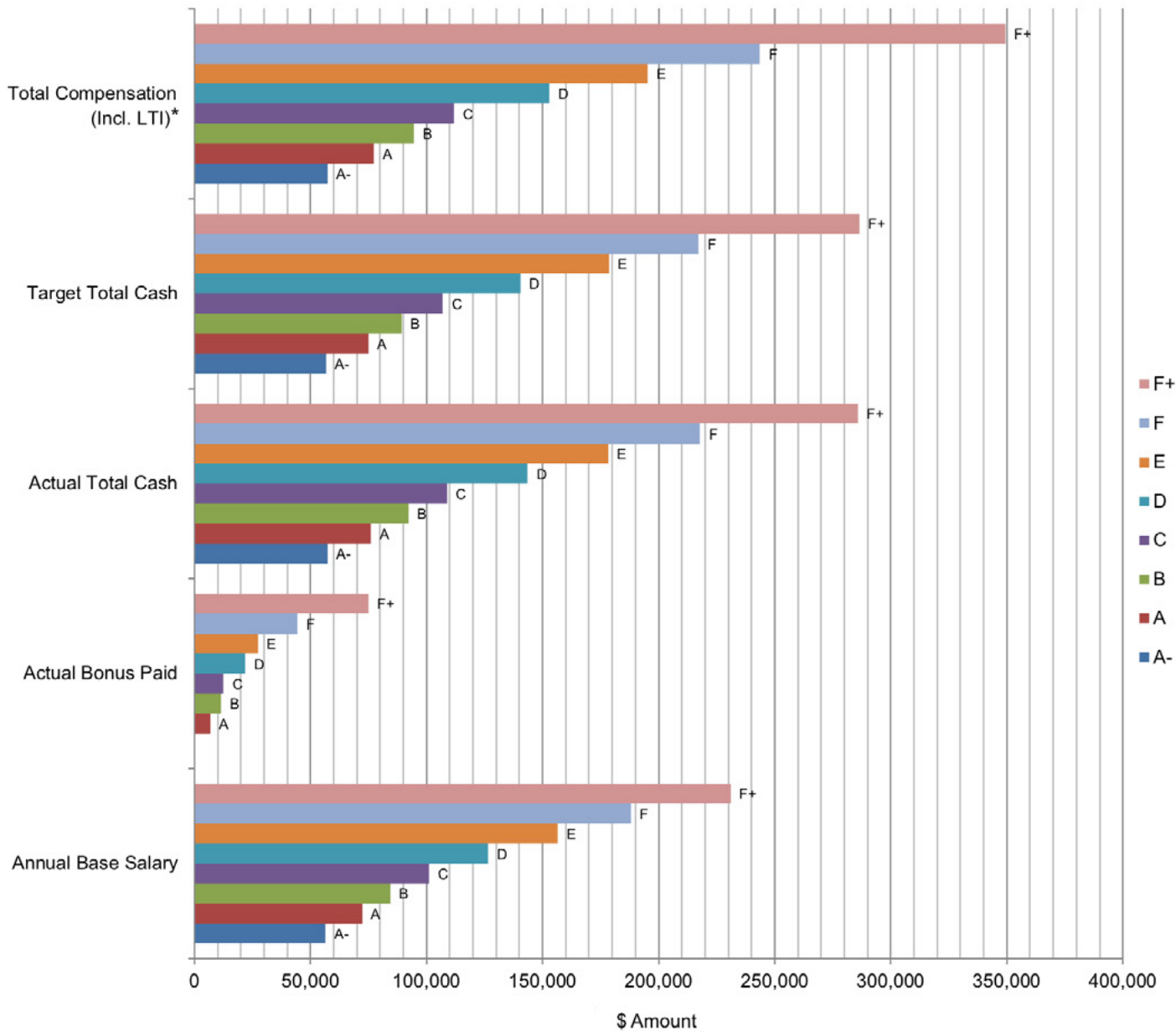


Geoscience Annual Base Salary by Years of Experience



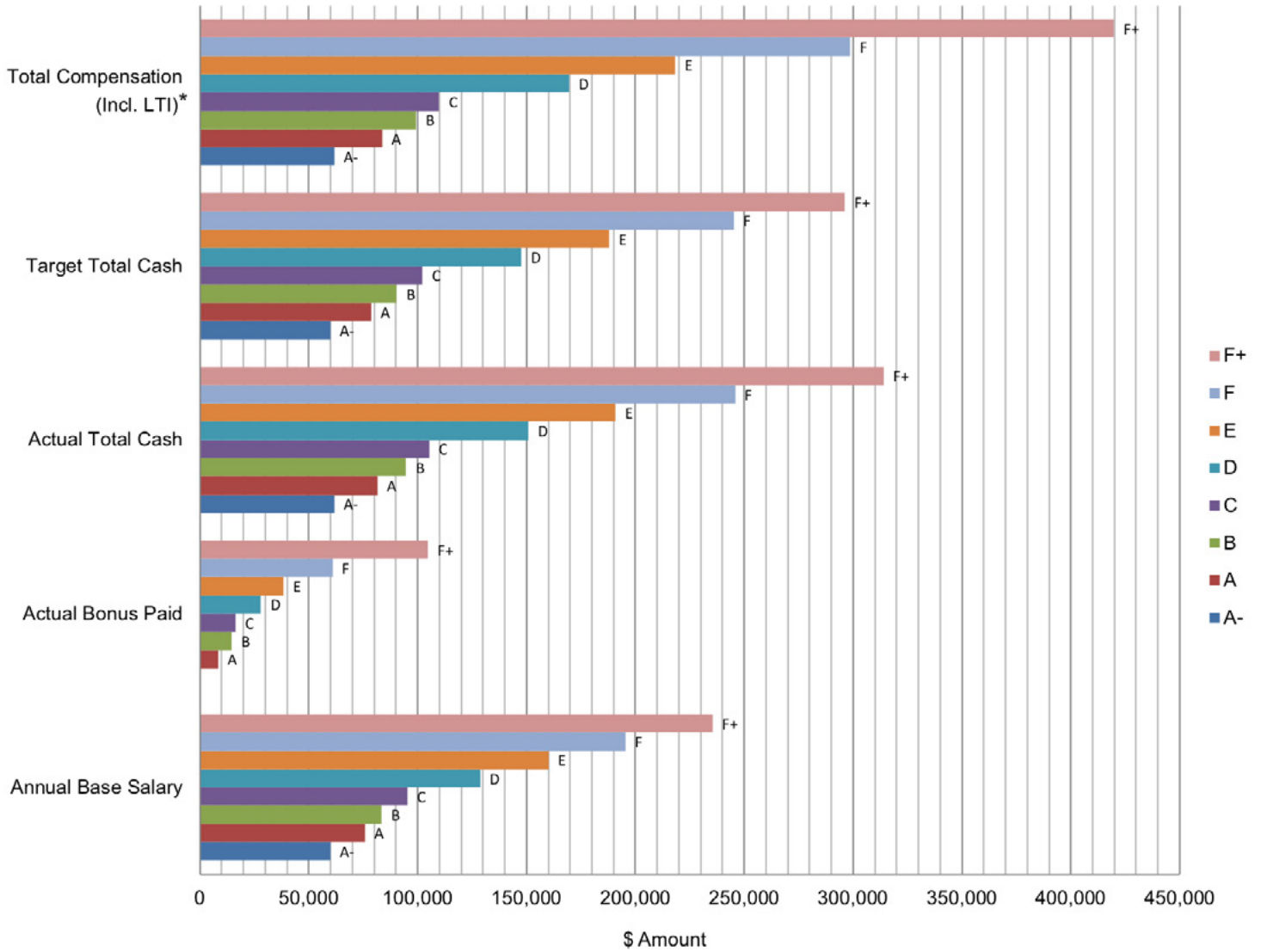
Insufficient data to report for 45+ to 50, 50+ to 55, and Over 55+

Engineering All Industry



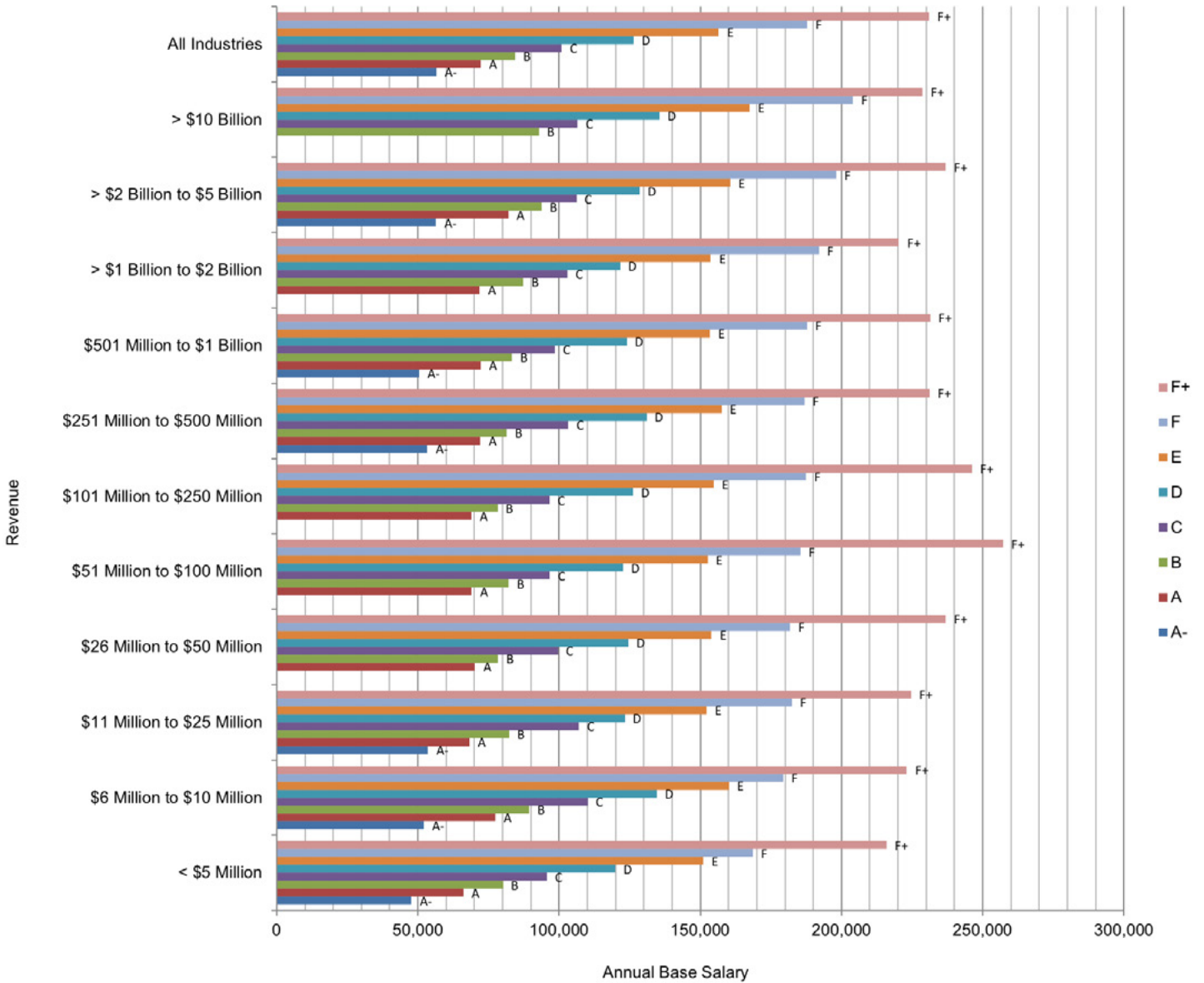
*long-term incentives

Geoscience All Industry

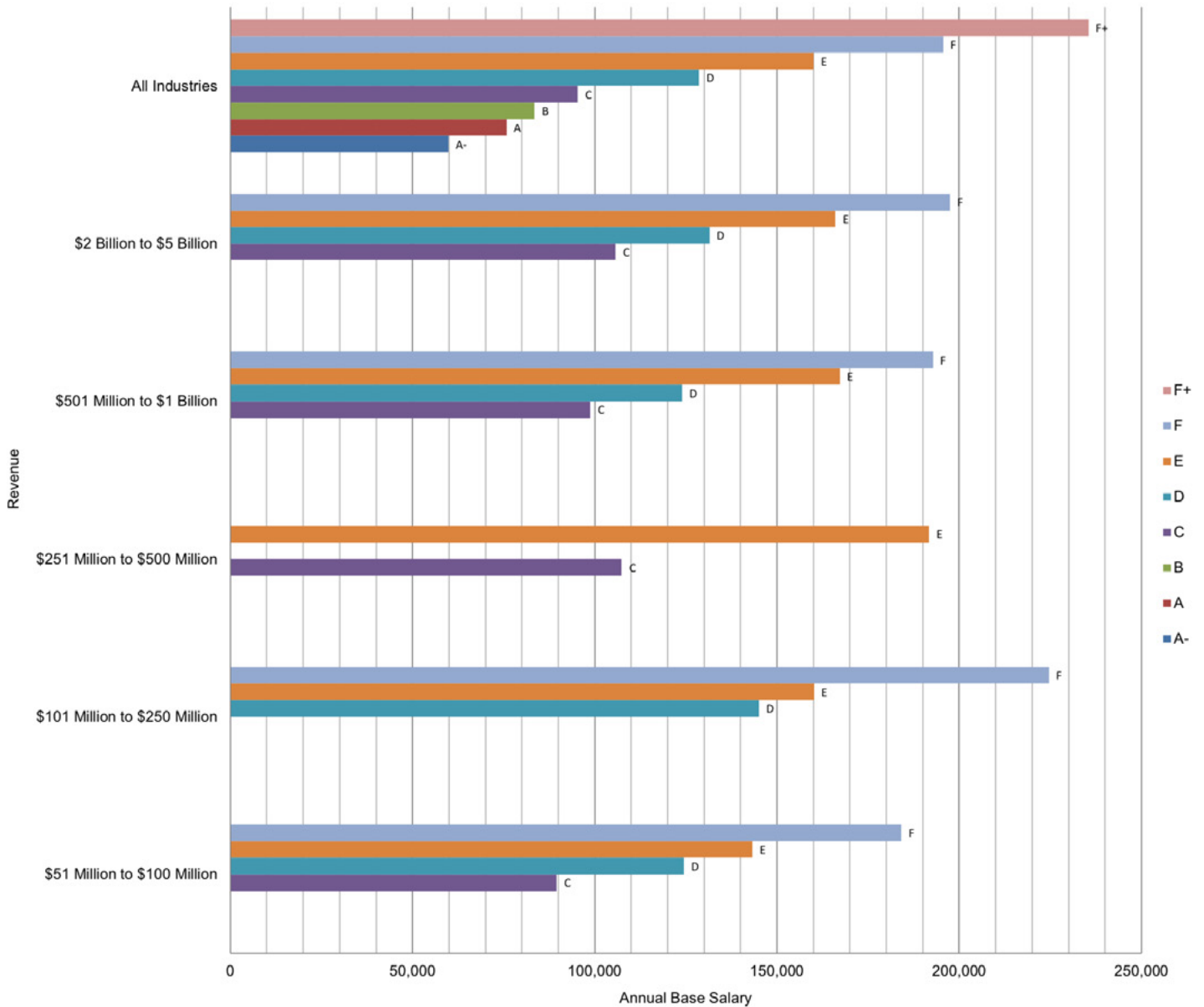


*long-term incentives

Engineering Annual Base Salary by Revenue



Geoscience Annual Base Salary by Revenue



Insufficient data to report for < \$5 Million, \$6 Million to \$10 Million, \$26 Million to \$50 Million, > \$1 Billion to \$2 Billion, > \$2 Billion to \$5 Billion, > \$5 Billion to \$10 Billion, and > \$10 Billion.

Share Your Knowledge and Experience

APEGA members are needed for the following volunteer opportunities



NEW VOLUNTEERING POSITION! Practice Standards Committee—Electrical Technical Council Representative

APEGA is nominating a professional member to serve as a representative on the Electrical Technical Council—a sub-council of the Safety Codes Council (SCC).

Appeal Board Panel

Be a part of the Appeal Board, which ensures Members and the public protection of their statutory right of appeal and their right to natural justice.

Discipline Committee Members

The Discipline Committee hears and decides on complaints of unskilled practice and unprofessional conduct against APEGA members and permit holders, brought before it by the Investigative Committee.

Mentors

APEGA invites experienced professional members to volunteer their time to mentor less-experienced members. Mentors are matched with mentees to provide guidance in many areas of their career and professional growth.

Wetlands Science and Engineering Working Group Members

APEGA is seeking geoscience and engineering professional members for the Wetlands Science and Engineering Working Group. This group aims to produce a practice guideline for implementation of the Alberta Wetlands Policy.

Environmental Practice Standard Panel Members, Environmental Professional Standards Subcommittee Members

Panel and subcommittee members are needed for the Environmental Practice Standards Panel and for the Environmental Professional Standards Subcommittee. Help APEGA protect the public interest through professional practice standards, guidelines, and bulletins related to the professional practice of environmental engineering and geoscience.

Geoscience, Engineering Professional Standards Subcommittee Members

Members are needed for the Geoscience Professional Standards Subcommittee and the Engineering Professional Standards Subcommittee. These subcommittees ensure APEGA professional practice standards, guidelines, and bulletins protect the public interest.

Youth Outreach

The outreach events that APEGA branches organize throughout the year fuel a lifelong interest and passion in STEM (science, technology, engineering, and mathematics) fields for children and youth. Current positions open for the fall include K-12 classroom experts, Rock and Fossil Clinic leaders, and Science Nights assistants.

More volunteer opportunities

University Outreach

APEGA has a variety of outreach areas that need your support for the fall season including rapid resume review sessions, speed mock interview sessions, speed networking events, and an industry mixer. Volunteering for these events enables you to contribute to the next generation of professionals through your encouragement and knowledge sharing, helping prepare them for their first steps in their careers.

Science Olympics

Share your passion for engineering and geoscience with students at the 2019 APEGA Science Olympics! This event is a great opportunity to foster enthusiasm for engineering and geoscience, promote your profession in the community, and log professional development hours with APEGA. Volunteers are needed as judges, event assistants, and challenge managers in the Edmonton, Calgary, and Peace Region areas.

National Professional Practice Exam Question Authors

Volunteers are wanted to help produce new, high-quality examination questions to add to the National Professional Practice Exam item bank.

Branch Executive Committee

APEGA has 10 branches that represent the regions of Alberta and serve as a conduit between APEGA's Council, staff, and APEGA members. The functions of each branch are an integral part of APEGA's operations. Volunteer on your branch's executive committee.

Registration Committee—Subject-matter Expert

Subject-matter experts (SMEs) are needed for the Registration Committee. An SME's primary duty is to review and provide recommendations on whether applicants professional registration has met our requirements.

Honours and Awards Committee

Committee members collaborate to identify and recognize the accomplishments of APEGA members, non-members, and member-directed projects, that have enhanced professional pride and the stature of the field of engineering and geoscience.

For further information on any of the opportunities listed here—or other APEGA-related volunteer opportunities—please contact:

APEGA Volunteer Management
1-800-661-7020
[***volunteer@apega.ca***](mailto:volunteer@apega.ca)

You can also check out the [volunteer section of the APEGA website](#).

Make an Impact

Build the Future by Volunteering

Volunteer Opportunities

- Boards, Committees, and Panels
- Community, University, and Youth Outreach
- Mentoring
- Special Events

Current APEGA volunteer opportunities are posted on the volunteering section of the APEGA website

Volunteer Benefits

- Earn Continuing Professional Development Credits
- Expand Your Business Network
- Develop Skills, Knowledge, and Experience
- Give Back to Your Profession
- Have Fun

Note: Your acceptance in a particular volunteer position depends on space being available and the suitability of your qualifications.

Contact APEGA Volunteer Management

1-800-661-7020

volunteer@apega.ca



MEMBER BENEFITS

Eligible APEGA members can take advantage of the following discounts. Complete details of these group benefits can be found at apega.ca under [Member Benefits](#) and Member Insurance. Due to seasonal or other limited-time promotions, the member discount may not be the lowest price—you are advised to compare. APEGA does not hold any member insurance profile or policy information.

To inquire about these benefits, check your eligibility, or provide service feedback, please email memberbenefits@apega.ca.

TRAVEL



Hotel and car rental travel search engines
Below-market travel discounts



5% off current national rates



10% off current national rates



10% discount value with valid APEGA Member card

FINANCIAL



Financial Planning Services: 20% discount for APEGA Members

PERSONAL



10% off select regular priced items



15% off on resume services



Market-leading, bring-your-own-device rate plans



10% off admission, IMAX, and annual membership

INSURANCE DISCOUNTS



Professional Liability Insurance

Pro-Form Sinclair Professional, A division of



Secondary Professional Liability Insurance



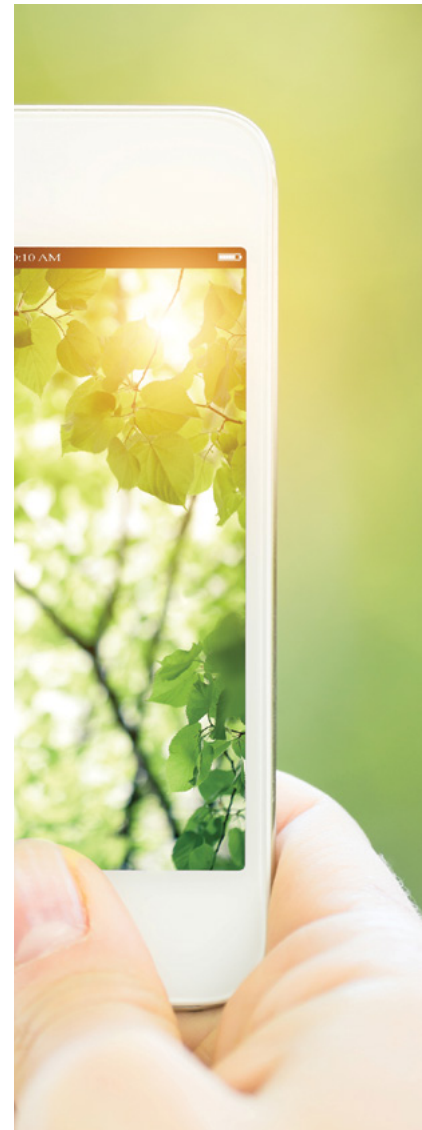
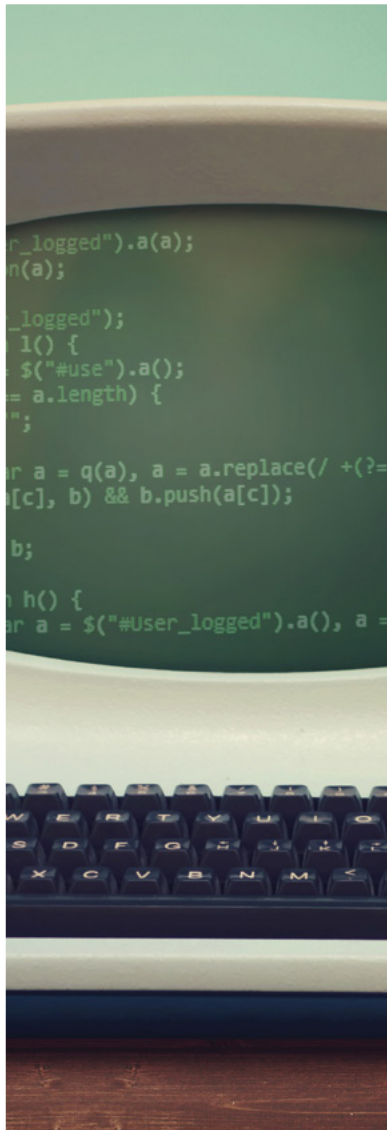
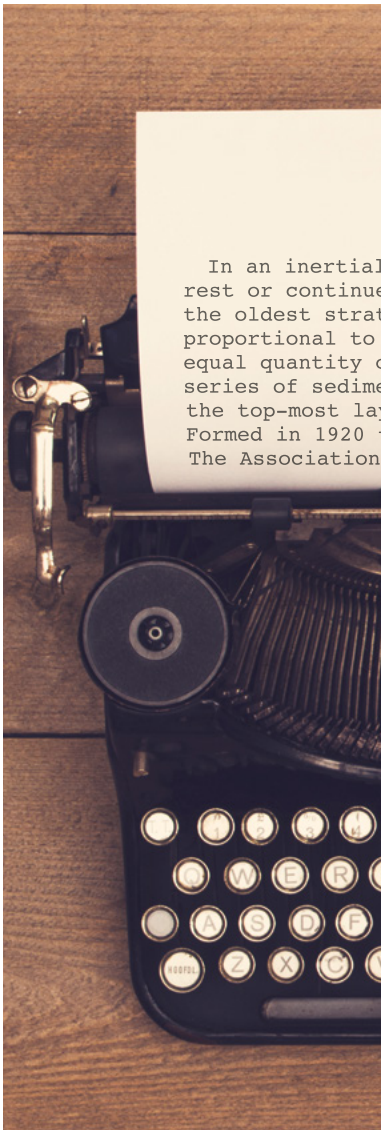
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